

PSOMAS



Enterprise GIS Initiation and Planning



County of San Mateo

February 27, 2015

ELECTRONIC SUBMISSION: County of San Mateo

SUBJECT: Proposal No. ISD1830 Enterprise GIS Initiations and Planning

Psomas is submitting our qualifications for Enterprise GIS Initiations and Planning Services. For over 25 years, Psomas has successfully provided counties and cities GIS planning, implementation, and operations services. Our team has the unique combination of technical expertise, subject matter expertise, resource availability, project management, and excellent communication skills.

Our approach is one of engagement and thoroughness. We are not working from a cook-book strategic plan process. Psomas applies a structured methodology to deeply evaluate each key component of the GIS program and make recommendations based on our expert analysis of what is best for San Mateo County. County stakeholders are engaged throughout the project to understand how the plan serves their specific interests and the County as a whole.

Psomas has included Northgate Environmental Management, Inc. (Northgate) as a subconsultant to provide consulting support bringing applied expertise in enterprise GIS development from Alameda County and other clients.

We look forward to the opportunity to discuss our qualifications with you further. I will serve as the primary point of contact to answer any questions and I am authorized to obligate and negotiate the contract on behalf of Psomas. I may be reached at (909) 260-6611 or cgooch@psomas.com.

Respectfully Submitted,

PSOMAS



Craig Gooch
Project Director



Han Chu, PE, PLS
Vice President/Project Manager

1500 Iowa Avenue
Suite 210
Riverside, CA 92507

Tel 951.787.8421
Fax 951.682.3379

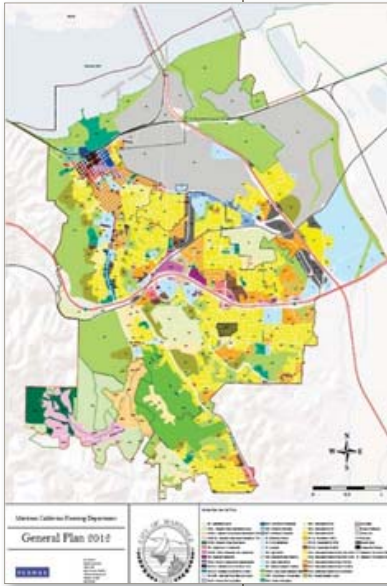
www.psomas.com



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PSOMAS QUALIFICATIONS



Psomas has been developing GIS strategic plans for over 15 years for cities, counties, utilities, regional cooperatives, and state agencies. We have conducted over 50 GIS strategic planning projects that include business requirements, needs assessment, strategic visioning, implementation planning and presentation to executives and stakeholders.

Most of those plans (estimated 95%) have been implemented. In many cases, Psomas has been involved with implementation and assisting the client in taking on system ownership following the strategic planning process.

Our planning services have been applied to various sizes of programs, such as statewide cadastral management, departments, organization-wide, or interagency collaborative.

The following list represents clients for whom we have developed GIS strategic plans:

- California Water Service Company
- City of Barstow
- City of Burbank
- City of Citrus Heights
- City of Dublin
- City of Fontana
- City of Inglewood
- City of Livermore
- City of Los Angeles
- City of Palo Alto
- City of Pasadena
- City of Phoenix, Sky Harbor Int'l Airport Sound Program, AZ
- City of Sacramento
- City of Santa Clara
- City of Santa Fe Springs
- City of Sunnyvale
- City of South Gate
- City of Yuma, AZ
- El Dorado Irrigation District
- Inland Empire Utilities Agency
- Los Angeles County Sanitation Districts
- Metropolitan Water District of Southern California
- Mission Springs Water District
- North Tahoe Public Utility District
- Orange County Fire Authority
- Orange County Sanitation District
- Rancho California Water District
- San Bernardino County
- Santa Clara County
- Santa Clara County Water District
- Solano County Water Agency
- Suburban Water Systems
- Water Replenishment District of Southern California
- Yorba Linda Water District

RELEVANT PROJECT EXPERIENCE

For over 25 years, Psomas has provided GIS implementation services for federal, state and county projects. Within that time, we have amassed an extensive project portfolio that exemplifies the depth and breadth of our experience. Below is a matrix listing an array of projects representing our diversity of GIS implementation experience that enhance our ability to define GIS strategy and technical elements in the plan.

Client/Project	Key Words	Date	Consulting	Data Management	GIS Applications	System Integration	Training	Field Application	Viewer	Workflow	Support
El Dorado Irrigation District , Enterprise GIS Planning	Asset Management	Ongoing	•			•				•	
City of Fontana , Sewer Rehabilitation GIS	Asset Management	Ongoing	•	•		•	•			•	•
City of Milwaukee , Milwaukee Airport Noise Program and Reporting System	Hosted, Property Management	Ongoing	•	•	•	•	•		•	•	•
California Water Service Company , Emergency Notification Management System	Emergency Notifications, Workflow Manager, Public Works, CCTV	Ongoing	•	•	•	•	•		•	•	•
Alameda County Fire Department	iPad Incident and Vehicle Tracking System	Ongoing		•	•	•	•	•	•	•	•
City of Martinez , Enterprise GIS Strategic Plan	Planning and Utility GIS Development	Ongoing	•	•		•	•				•
California Water Services Company , Enterprise GIS	Emergency Customer Notifications	Ongoing	•		•	•	•	•	•	•	•
Rancho California Water District , Enterprise GIS	Strategic Planning, GIS Integration	Ongoing	•		•	•			•	•	
Kern County Council of Governments , Regional Blueprint 2D/3D Visualization	3D Visualization, Animation, Planning, ESRI Storymaps	Ongoing	•	•							
Rancho California Water District	Enterprise GIS Viewer, Development and Deployment	2014	•	•	•	•	•		•	•	•
Eastern Municipal Water District , GPS Valve Locating Procedure	GPS, Workflow	2013	•	•	•	•	•	•		•	•
Alameda County Public Works , Stormwater GIS Modernization	Asset Management, Engineering Models, Geodatabase Design	2013	•	•	•	•	•		•	•	•
Orange County Sanitation District	Onsite Mapping and Data Editing	2012		•							•
City of Dublin , Enterprise GIS Strategic Planning and Asset Management	GIS Strategic Planning, Asset Management Strategies	2012	•	•						•	
City of Livermore , Enterprise GIS and Management Consulting	Strategic Planning Refresh, Executive Buy-in	2012	•								
Southern California Association of Governments , Greenhouse Gas Emission Estimates	Modeling, Land Use, Energy	2012		•	•					•	
City of Lemon Grove , Asset Management GIS	Street Lights, Cityworks, Assessment Districts	2011	•	•		•	•	•	•		•
City of Barstow , Enterprise GIS	Strategic Planning, Asset Management, GPS, Utility Master Planning	2011	•	•	•	•	•	•	•	•	
Rancho California Water District , Water Conservation Manager	Vegetation Mapping, Conservation, Public Works	2011		•	•	•	•		•	•	•
U.S. Army Corps of Engineers , Coastal Sediment Master Planning Survey	Needs Assessment, Survey	2011	•								
City of Phoenix , Sky Harbor Airport Noise Program	Property Management, Planning, Airports, Facilities	2010	•	•	•	•	•	•	•	•	
Alameda Corridor Engineering Team , Rail Asset Management System	Real Estate Management, Asset Management	2010	•	•	•	•	•		•	•	•
Orange County Fire Authority , Countywide Public Safety Interoperability GIS	Vehicle Routing, Fire Services, Public Safety	2010	•	•	•	•	•		•	•	•
Centre City Development Corporation , Enterprise GIS Flex Viewer	Parking Meter Manager, Building, Inventory, City Planning	2010		•	•	•	•		•		
Sacramento Area Flood Control Agency , Sacramento Levee Management Program	Permitting, Property Management, Project Planning, Right-of-Way	2009		•	•		•		•	•	
Southern Alameda County GIS Consortium , Regional GIS Development	Parcels, Addresses, Buildings, Utilities, Planning, Fire	2008	•	•			•				•
Santa Clara County , GIS Strategic Plan	Regional GIS Cooperative, Implementation of Road Map	2006	•	•	•	•	•		•	•	•
City of Los Angeles , Stormwater Geodatabase Development and Application	Public Works	2005	•	•	•	•	•		•		•

GIS Implementation Plan | Psomas

El Dorado Irrigation District

PROJECT DATES

April to August 2014

KEY PERSONNEL

Craig Gooch

– Project Manager

Brian Hoefer

– Senior GIS Consultant

CLIENT/CONTACT

El Dorado Irrigation District

2890 Mosquito Road
Placerville, CA 95667

Elizabeth Wells

Wastewater/Recycled Water
Engineering Division Manager
(530) 642-4146
ewells@eid.org

Tim Ranstrom

Director of IT
(530) 622-4513
transtrom@eid.org

RELEVANCE TO THE PROJECT

- **Enterprise GIS Strategic Planning**
- **Infor / Hansen Geodatabase Integration Strategy**
- **Geocortex Essential GIS Viewers**



El Dorado Irrigation District had been using GIS technology in an effort to organize and manage infrastructure information for over a decade. However, progress towards building GIS databases and integrating those with key systems, such as CMMS and CIS (Infor Hansen), document management (DocLocator), SCADA, and hydraulic modeling (InfoWater), had advanced only incrementally. The result was a GIS that has been greatly limited in scope and under-utilized. While the District had been guided overall by a GIS Strategic Plan developed by a software vendor, it consisted primarily of high-level concepts and initiatives, lacking the specific detail necessary to turn into actionable projects. It was in this environment that Psomas was selected to develop a five-year-horizon GIS Implementation Plan.

The project reviewed everything that EID was doing geospatially and Psomas challenged even basic prevailing assumptions about the current GIS program, including development priorities, GIS technology platform, local versus cloud-based deployment, system architecture, including mobile technology, web development platform, and staffing levels and organization.

Psomas staff conducted on-site needs assessment meetings with various teams from Engineering, Construction, Operations & Maintenance, Fleet, Customer Service, and Finance. The following were the documented outcomes from those meetings:

- 41 application and integration needs defined and organized into eight (8) different logical groups, such as “Foundational,” “High Value,” “Quick Wins”
- 23 data development needs described and cross-referenced to the applications they would enable and support (above)
- Seven (7) Infor Hansen related development needs
- Five (5) GIS technology platform development needs

The GIS Implementation Plan delivered to EID featured a detailed “Development Projects” chapter that presented six (6) phased GIS development projects including objectives (tied by reference to the specific needs that would be met, ensuring that all stated needs were addressed by the six projects), project deliverables, users, detailed implementation tasks, estimated costs / schedule by fiscal year, and continuing operations requirements for each project.

The GIS Implementation Plan was well-received at EID and successfully presented to its Board of Directors soon thereafter in support of a first two-year capital funding request. As a result, the staffing changes (addition of GIS Coordinator position) have been acted upon and the first two implementation projects are currently (simultaneously) underway using scope descriptions and budget estimates nearly verbatim from the GIS Implementation Plan.

Enterprise GIS Design and Implementation Services | Psomas

County of Alameda

PROJECT DATES

2012 to 2016

KEY PERSONNEL

Craig Gooch

– Project Director

Han Chu

– Project Manager

Brian Hoefer

– Senior GIS Consultant

Scott Doan

– Emergency Services
Consultant

Keith Palmer

– Technical Manager/Developer

Alex Evett

– Senior GIS Analyst

Pascual Benito, PhD

– Developer

CLIENT / CONTACT

County of Alameda

1221 Oak Street
Oakland, CA 94612

Gary Raymond

Information Technology
Manager
(510) 272-3705
gary.raymond@acgov.org

Rohin Saleh, MS, PE
Supervising Civil Engineer
Watershed Planning Section
Alameda County Flood
Control District
(510) 670-5487
rohin@acpwa.org

Jim Johnson

Chief, Assessment Services
Division, Assessor's Office
(510) 272-3795
James.Johnson@acgov.org

RELEVANCE TO THIS PROJECT

- **Enterprise Level GIS Deployment**
- **County-wide Program Development**
- **Developmental Applications**



Psomas was selected to modernize the Alameda County GIS program and support GIS operations for all county departments. Coordinating through the county IT department, Psomas is supporting public works, surveyor, community development, assessor, fire, registrar of voters, public health, environmental health and other departments. The modernization process includes updating / redeveloping Esri based solutions for data management, systems integration (document imaging, work management, infrastructure modeling, case management, and computer aided dispatch). Psomas has developed utility geodatabase designs, CAD to GIS data translation, and web and mobile GIS applications. Each project begins with a detailed business requirement analysis and plan to ensure application sustainability.

- **Countywide Viewer:** Multipurpose intranet viewer with custom workflows for mailing labels, and special search and feature selection. Role based user configuration focuses the application to relevant themes of data
- **Assessor Parcel Viewer:** Internal and public viewer including HTML5 mobile version that integrates parcel GIS with enterprise level property and assessment information.
- **Assessor Mobile Canvassing:** HTML5 field appraiser application includes supervisor dashboard for work assignment and tracking. Mobile application includes routing to sites, data input and validation forms, and photo integration for iPad. 2014 NACO award winner
- **Community Development / Public Works GIS Viewer:** Provides direct integration with case management system and document management system for community develop and public works uses.
- **Registrar of Voters:** An election results viewer designed for public access to real time election results, and an advanced intranet application facilitating precinct consolidation for election management integrated with the ROV election management system.
- **CRIMS GIS Integration:** Provides GIS map viewer of the location and detailed data associated with parolees and warrants to inform public safety officers of the location of felons.
- **Surveyor Monument Preservation:** GIS and FileNet solution indexing survey monuments and records to provide the survey community with a resource to facilitate land surveying and monument preservation.
- **Department of Environmental Health:** Onsite water treatment system (OWTS) GIS program is designed to facilitate the county's administration of onsite water treatment system compliant with state law.

Enterprise GIS Strategic Planning and Implementation Services | Psomas

Rancho California Water District, Temecula, CA

PROJECT DATES

2010 to 2011

KEY PERSONNEL

Craig Gooch

– Project Manager

Han Chu

– Senior Consultant

Brian Hoefer

– Senior Consultant

CLIENT/CONTACT

Rancho California Water District

42135 Winchester Road
Temecula, CA 92590

Jason Martin

Information Technology/
Customer Service Manager
(951) 296-6919
martinj@ranchowater.com

Liviu Rosu

GIS Coordinator
(951) 296-6976
rosul@ranchowater.com

RELEVANCE TO THE PROJECT

- Enterprise GIS Strategic planning
- Infor Hansen Geodatabase integration strategy
- Geocortex Essentials GIS Viewers

Psomas has provided GIS planning and implementation services for the Rancho California Water District. The District has been using GIS for years but wished to enhance GIS effectiveness through a needs assessment and strategic planning process and specific GIS software applications.

Strategic Planning

Psomas developed a five-year GIS strategic plan based on clearly defined business needs and opportunities identified through needs assessment services. Psomas applied a project methodology that documented District business requirements, identified existing service gaps and then defined opportunities to enhance business practices with GIS solutions and integration with existing business systems. The plan developed business requirements through detailed interviews with each of the District divisions. The needs were assessed for costs, benefits, and alignment with District strategic objectives and goals.

The resulting plan identified specific GIS application opportunities addressing GIS integration with District business systems, enhanced workflow design, standardized data maintenance, and utilization of web and mobile GIS applications. Transformational elements of the plan addressed full enterprise information integration and deployment of web and mobile applications to increase access and use of information for the field and office workforce. A multi-year financial assessment identified benefits and costs associated with the incremental deployment of the GIS elements.



Water Conservation GIS

Psomas assisted the District in developing and deploying a water budget based tiered rate structure. GIS was used to identify irrigation budgets for each customer based on the irrigation area and other water uses such as pools. Psomas developed a web-based GIS editing and viewing application to define irrigated areas and maintain documentation to assist in customer communication. Psomas also managed collection of Infrared Imagery and classification to detect and quantify irrigated vegetation.

“Map My County” Application Development | Psomas

County of Riverside

PROJECT DATES

2013 to 2014

KEY PERSONNEL

Han Chu

– Project Manager

Craig Gooch

– Senior Consultant

Alex Evett

– GIS Analyst

Keith Palmer

– Application Developer

CLIENT / CONTACT

Riverside County

Information Technology
Department
3450 14th Street, 2nd Floor
Riverside, CA 92501

Damian Laning

(951) 955-6523
Damian.Laning@rivcoit.org

RELEVANCE TO THIS PROJECT

- **Enterprise GIS Viewer**
- **Advanced Real Time Geoprocessing**
- **Peer County Information Technology Sponsor**



The County of Riverside had developed a Riverside County Land Information System (RCLIS) that provides parcel information and records to both County staff and general public. Having served the County and its citizens for over a decade, the County has engaged Psomas to recommend and develop a replacement system to be designated as Map My County (MMC).

The new MMC is designed to migrate the functions of RCLIS that has proven to serve the business and information needs of the land information user community, but migrating the platform to current and sustainable technology.

The County selected Latitude Technology’s Geocortex as the technology platform, in which Psomas developed the MMC: one version in Silverlight for robust and complex internal business needs, and the second version in HTML5 for streamlined information needs for general public and other commercial parties. The public version detects the device and initiate user interface that maximizes the capabilities and limitations of mobile equipment, including tablets and smart phones.

Enterprise GIS Implementation | Psomas

California Water Services Company

2012 MANAGEMENT INNOVATION AWARD

National Association of
Water Companies



PROJECT DATES

2000 to 2011

KEY PERSONNEL

Craig Gooch

– Senior GIS Consultant

Han Chu

– Project Manager

Alex Evett

– GIS Analyst

Keith Palmer

– Programmer

CLIENT/CONTACT

California Water Service

Company

1720 North First Street
San Jose, CA 95112

Shannon Dean

Director of Corporate
Communications
(310) 257-1435
sdean@calwater.com

RELEVANCE TO THIS PROJECT

- **Large Organization Enterprise**
- **Emergency Notification App**

California Water Service Company (Cal Water) retained Psomas to help transform their business operations using geospatial technology. Psomas conducted an extensive need assessment analysis to document the business processes, information needs, business trends, and existing information technology within each of the Cal Water business units. The analysis findings demonstrated significant benefits could be achieved by adopting an enterprise-wide GIS to serve diverse business functions with common data and analytical capabilities. Psomas prepared a GIS Master Plan defining strategies, implementation projects, organizational needs, phasing, budget and benefits. The plan provides a roadmap to guide Cal Water through a multi-year GIS integration program. GIS application areas include mapping, mobile computing, CMMS, water quality, water conservation, emergency notification, route optimization, hydraulic modeling, customer service support, capital improvement planning, and more. These will be achieved with IT integration and strategic alignment.

Psomas performed an enterprise level GIS needs assessment and strategic plan for Cal Water over 10 years ago. The plan was implemented and resulted in an enterprise and centralized geodatabase integrated with their business systems including hydraulic modeling, customer information system and others. Cal Water has subsequently upgraded their technology and are working to broaden the use of GIS by field personnel.



GIS Implementation Service | Psomas

City of Fontana

2008 ESIG AWARD

Urban and Regional
Information Systems
Association, Exemplary
Systems in Government Award



PROJECT DATES

1997 to Present

KEY PERSONNEL

Craig Gooch

– Senior GIS Consultant

Alex Evett

–GIS Analyst

CLIENT / CONTACT

City of Fontana

16489 Orange Way
Fontana, CA 92335

Rogelio Matta

Senior Administrative Analyst
(909) 350-6660
rmatta@fontana.org

RELEVANCE TO THIS PROJECT

- **Enterprise GIS Strategic Plan**
- **Integration of Systems with GIS**
- **Award Winning Solution**

Psomas continues to provide on call GIS support services to help the City manage and advance their award winning sewer asset management program integrated with GIS.

The City Public Services Division of the Public Works Department is using a GIS based asset management system to improve the efficiency and effectiveness of managing their public works infrastructure. The data driven approach facilitates prioritization of rehabilitation and maintenance activities to maximize infrastructure life, reduce operational risks, and maximize the effectiveness of the available infrastructure budgets.

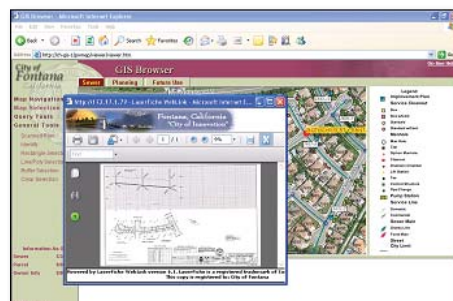
Following development of a City-wide GIS Strategic plan, Psomas provided GIS design and implementation services for implementation of a geospatial integrated sewer management system. Initially Psomas designed and implemented the sewer Geodatabase and as-built drawing system to address mapping and asset inventory needs. With this in place the city began an automation transformation that changed workflows and integrated other systems such as LuCity CMMS, hydraulic modeling, and document management. Psomas develop an Esri based web application to integrate information from these systems. The City embraced the technology changes and deployed the LuCity and web mapping system to the field workforce to enhance information access that increased operational efficiency measurably.

Psomas Services Included:

- Geodatabase design
- Sewer geodatabase development from as-built drawings
- GIS web viewer integrating document viewing and CMMS data
- On call GIS technical services and GIS maintenance
- Sewer rehabilitation program design in LuCity

The city realized substantial benefit from this system:

- \$30,000 annually recurring staff savings due to efficiency improvements
- Reduced vehicle mileage and associated staff time by providing mobile access to the system
- Improved asset inventory, condition knowledge, and maintenance history allows optimization of operations and maintenance activities to extend asset useful life and assuring the right level of maintenance is provided
- More responsive customer service with ability to dispatch based on proximity of field workforce to the service call
- Geoauditing identified a significant number of sewer connections previously missed in the billing system, thus increasing city revenue for connection fees
- GIS visualization helps identify assets missed during maintenance programs and enabling subsequent maintenance scheduling to ensure compliance



Water Geodatabase Development | Psomas

City of Martinez

PROJECT DATES

2012 to 2013

KEY PERSONNEL

Craig Gooch

– Senior GIS Consultant

Han Chu

– Project Manager

CLIENT/CONTACT

City of Martinez

525 Henrietta Street
Martinez, CA 94553

Joe Enke

Senior Civil Engineer
(925) 372-3524
jenke@cityofmartinez.org

RELEVANCE TO THIS PROJECT

- **Geodatabase Design**
- **Field Computing**
- **Planning and Utility Services**



Psomas developed a comprehensive water GIS for the City to serve as an asset inventory and improve the accessibility to water system data for operations and engineering. The project included development of an Esri geodatabase design defining 30 water feature types and detailed data dictionary that aligned with the specific information needs of the City. The design supports integration with hydraulic modeling and future asset management using unique asset ID values.

Nearly 600 as-built drawings were cataloged, scanned and used as the primary source of water system mapping. Existing CAD maps were used as a secondary reference as their completeness and accuracy was not adequate for the precise GIS. Psomas performed precise GPS surveying to identify the horizontal and vertical coordinate locations of water system surface features such as hydrants, valves, and blow-offs.

These coordinates were used to control the placement of GIS features mapped from the as-built drawings. A City-wide map atlas was designed with input from the field operations teams. The standardized map book was produced to show orthophotos and street map visualizations to help locate water system features. Psomas is providing support for integration of the water GIS into the City's web-based GIS mapping using Digital Map Products CityGIS.

Oakland Army Base Air Quality Monitoring Portal | Northgate

Private Developer

PROJECT DATES

2012 to Present

KEY PERSONNEL

Pascual Benito
– Project Manager

CLIENT/CONTACT

Architectural Dimensions
300 Frank H. Ogawa Plaza
Suite 375
Oakland, CA 94612

James Heilbronner
President
(510) 463-8300
jamesh@archdim.com

RELEVANCE TO THIS PROJECT

- **Advanced GIS Integration**
- **Real Time Sensors**
- **Large Scale System**



The 330-acre Oakland Army Base (OAB) was decommissioned in 1999. The location of the former base provides excellent rail and highway access and immediate proximity to complementary activities at the Port of Oakland. As part of the development agreement, a comprehensive package of community benefits was negotiated that addressed environmental, social, and economic aspects of the project. The largely residential West Oakland neighborhood is directly downwind of the former OAB and the 140-acre construction phase that began in November 2013. The West Oakland community, the subject of a 2008 diesel particulate matter health-risk assessment conducted by the California Air Resources Board, is exposed to diesel particulate matter at levels nearly three times the average ambient level, and is understandably sensitive to the potential air quality impacts of large-scale redevelopment activities. One of the community benefits of the redevelopment project was the establishment of an air monitoring program to track ambient air quality prior to and during construction.

The Developer and its consultants, City of Oakland, Port of Oakland, and the Bay Area Air Quality Management District, comprised a team to develop an Air Quality Monitoring Program in the West Oakland community, in order to evaluate changes and trends in ambient air quality as redevelopment activities commence. The monitoring program includes three continuous particulate monitors for PM2.5, an automated sample collection system for elemental carbon, and a meteorological station. Elemental carbon will be used to estimate the portion of PM2.5 due to diesel emissions.

Hourly PM2.5 data are automatically transferred from the monitors' internal data loggers via cellular modems to a central offsite SQL Server database on an hourly basis. After a short delay for quality control checks, PM2.5 and meteorological data are then pushed to a web portal, where data populate interactive tables and graphs which are accessible to the public, project stakeholders, and regulatory agencies. Hourly and daily-averaged air quality and weather data sets can be downloaded from the site and the public can also submit questions and comments via the website.

The web-based portal provides near real-time monitoring data distribution, analysis, and visualization in easy-to-understand interactive maps, charts, and graphs. By providing a simple and intuitive interface for the public to view and download available data, the web portal allows those living in West Oakland to more easily stay informed on the air quality conditions and trends in their community.

Enterprise GIS Design and Implementation Services | Northgate

County of Alameda

PROJECT DATES

2012 to Present

OWNER

City of Alameda

KEY PERSONNEL

Pascual Benito
– Project Manager

CLIENT/CONTACT

Psomas
1500 Iowa Avenue, Suite 210
Riverside, CA 92507

Craig Gooch
Project Manager
(951) 787-8421
cgooch@psomas.com

RELEVANCE TO THIS PROJECT

- **Enterprise-Level GIS Deployment**
- **Department Application Development**

As part of the Psomas team providing on-call GIS programming services to Alameda County, Northgate's GIS staff is managing geospatial mapping, data analysis, and enterprise GIS application development projects to support programs of multiple County Departments, including the Departments of Health and Environment, Public Works, Fire Department, Registrar of Voters, and the County Assessor's Office, and providing on-call technical support to the County's enterprise ArcGIS infrastructure. Major projects include development of the Countywide eGIS Viewer for broad internal use within the County for accessing and viewing a wide range of County GIS layers linked to County database systems, as well as agency-specific versions of the viewer for the Public Works Agency to view PWA assets and infrastructure, and for the Community Development Agency to view and access zoning, land use, and permitting related data, development of a mobile field inspection application for use by the Assessor's Office during annual property assessment inspections, and upgrading web GIS applications used by the Registrar of Voters to handle a range of tasks such as voter precinct consolidation, polling place assignment, and for sharing and displaying elections results data with the public.



GIS Development | Northgate

County of Alameda

PROJECT DATES

2012 to 2016

KEY PERSONNEL

Pascual Benito
– Project Manager

OWNER

County of Alameda
Flood Control and Water
Conservation District

CLIENT/CONTACT

Wood Rodgers, Inc.
180 Grand Avenue, Suite 400
Oakland, CA 94612

Cheng Soo, PE, CFM
Associate
(510) 208-2400
csoo@woodrogers.com

RELEVANCE TO THIS PROJECT

- **Geocortex Viewer**
- **Data Visualization**

To better identify flood control improvements needed to meet a 100-year flood protection level in Hayward, Union City, and Fremont, drainage master plans have been developed for the Alameda County Flood Control and Water Conservation District (District) on the basis of detailed hydrologic and hydraulic studies. Northgate staff developed a feature-rich web-based GIS viewer that provides the consultant team and District staff with easy access to the entire GIS database of model system inputs and outputs, including land use, soil type, hydraulic and hydrologic properties of open and closed channel networks, and supporting documents, such as site photos, survey locations, and as-built diagrams.



REFERENCES

PSOMAS

Reference No. 1

Client Name and Address	ALAMEDA COUNTY 1221 Oak Street, Oakland, CA 94612
Telephone and E-mail	(510) 272-3705 gary.raymond@acgov.org
Contact	Gary Raymond, Information Technology Manager
Project Name	Enterprise GIS Design and Implementation Services
Go Live Date	December 2013
Description	Provide eGIS requirements, design, implementation, and operations support through the Information Technology Department supporting all county departments with GIS technology implementation and integration with business systems.

Reference No. 2

Client Name and Address	EL DORADO IRRIGATION DISTRICT 2890 Mosquito Road, Placerville, CA 95667
Telephone and E-mail	(530) 642-4146 ewells@eid.org
Contact	Elizabeth Wells, Engineering Manager
Project Name	Enterprise GIS Planning and Implementation
Go Live Date	May 2014
Description	Psomas performed a GIS needs assessment by evaluating the existing GIS program architecture, database design, software, staffing, and services provided. A GIS strategic plan was prepared that addressed business needs and aligned the new GIS services to the priority needs. A detailed tactical plan defined implementation projects, resource needs, costs, and outcomes. Job descriptions and role definitions were provided for the GIS division. Psomas is proceeding with implementation projects.

Reference No. 3

Client Name and Address	RANCHO CALIFORNIA WATER DISTRICT 42135 Winchester Road, Temecula, CA 92590
Telephone and E-mail	(951) 296-6919 martinj@ranchowater.com
Contact	Jason Martin, Information Technology/Customer Service Manager
Project Name	Enterprise GIS Strategic Planning and Implementation Services
Go Live Date	2011
Description	Psomas has provided GIS planning and implementation services for the Rancho California Water District. The District has been using GIS for years but wished to enhance GIS effectiveness through a needs assessment and strategic planning process and specific GIS software applications.

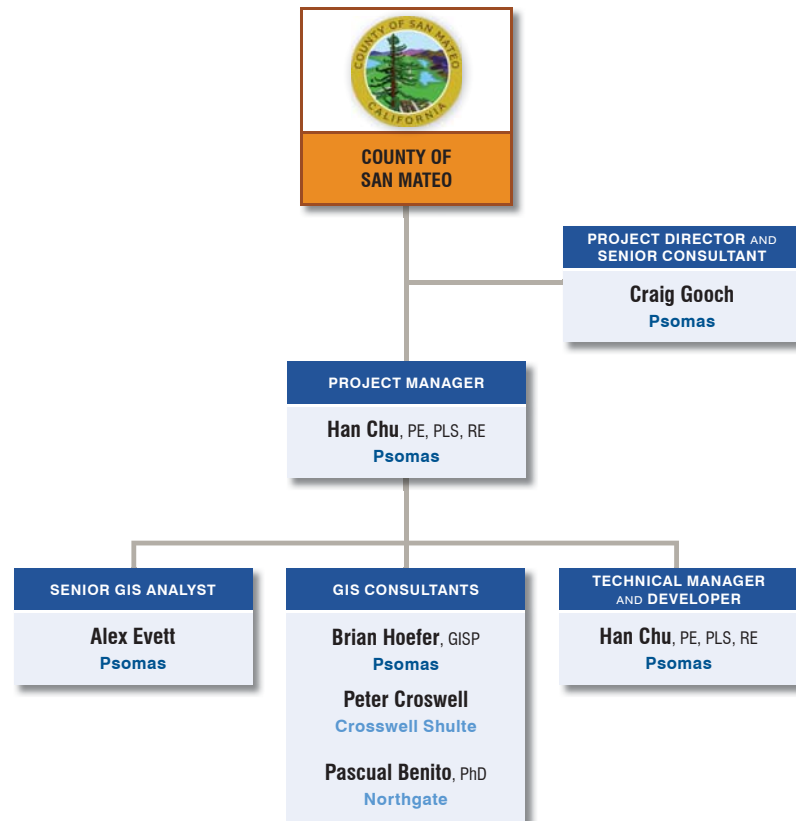
Reference No. 4

Client Name and Address	COUNTY OF RIVERSIDE 3450 14 th Street, 2nd Floor, Riverside, CA 92501
Telephone and E-mail	(951) 955-6523 Damian.Laning@rivcoit.org
Contact	Damien Laning, Project Manager
Project Name	"Map My County" Application Development
Go Live Date	October 2014
Description	The County of Riverside had developed a Riverside County Land Information System (RCLIS) that provides parcel information and records to both County staff and general public. Having served the County and its citizens for over a decade, the County has engaged Psomas to recommend and develop a replacement system to be designated as Map My County (MMC).

Team Qualifications

ORGANIZATION CHART

The Organization Chart below identifies each proposed team member, their area of responsibility, and lines of communication.



KEY PERSONNEL

Project Team Overview

Psomas has assigned Mr. Han Chu, a senior level Project Manager with experience in handling projects of this magnitude that require coordination of multiple critical events and include a reporting structure comprised of several committees. Our team's principal consultant, Mr. Craig Gooch, also has a deep understanding of GIS and IT technology as well as City business functions and organizational structures. Mr. Chu or Mr. Gooch has served as project manager or principal consultant on each of the strategic planning projects referenced within this proposal. Both have extensive project management training and experience in a diversity of technology and organizationally complex projects.

The team includes subject matter experts in County business disciplines, GIS data management, IT technology, and GIS applications and design. This senior team has perspectives on the business of the County, application areas for nearly all County departments, and a deep understanding of current GIS technologies and emerging directions.

HAN CHU, PE, PLS, RE – Project Manager | Mr. Chu will serve as the Project Manager to oversee project and task execution, delivery, and client satisfaction. He will be responsible for the coordination of project resources, and monitoring project schedule and budget. He will lead/facilitate regular progress meetings, produce monthly status reports, oversee billing, and maintain Psomas' project management systems. Mr. Chu will be a primary consultant in the needs assessment and contributor to the GIS Strategic and Tactical plans.

CRAIG GOOCH – Project Director | Mr. Gooch will serve as the Project Director responsible for the quality management of the work processes and deliverables. He will serve as a principal consultant and co-author of the GIS Strategic and Tactical plans. He will serve as a Senior Consultant supporting the definition of requirements, business process management and contribute subject matter expertise as needed. His services will cover all authorized projects and tasks. As a Psomas Principal, Mr. Gooch will ensure sufficient corporate resources and priorities are set to address the County's requirements.

BRIAN HOEFER, GISP – Senior GIS Consultant | Mr. Hoefer will serve as the Senior GIS Consultant and business process analyst. He will serve as a principal consultant and co-author of the GIS Strategic and Tactical plans. Mr. Hoefer will lead the GIS technology team to perform business process analysis/re-design to connect the business drivers for GIS technology to practical specifications for applications, data, and business processes. He will provide database design, workflow design, and training related to data management including field data collection processes.

PETER CROSWELL, GISP – Senior GIS Consultant – **Croswell Shulte** | Mr. Croswell has over 30 years experience as a government employee and consultant for a wide range of public and private organizations in North America. He has led or played a major role in over 150 projects involving GIS and IT assessment and planning—with a major focus on GIS needs assessment, design, planning, standards and policies, organizational development, and implementation support. His work on similar projects with local governments and utility organizations is extensive and includes large and small organizations and jurisdictions throughout the USA and Canada.

KEITH PALMER – Technical Manager/Developer | Mr. Palmer will serve as the Technical Manager/Developer with all technology projects and application development tasks. He will be responsible for leading the technology and developer teams in design, development, installation, maintenance, and technical support tasks. He will provide technology recommendations to the GIS Strategic and Tactical Plan. Mr. Palmer will provide programming services in addition to his leadership responsibilities.

PASCUAL BENITO, PhD – Lead Software Developer – **Northgate** | Dr. Benito will participate in the review of the existing technology environment and the development of technology recommendations and strategy. He will be involved in needs assessment interviews for environmental and storm water related groups.

ALEX EVETT – Senior GIS Analyst | Mr. Evett will serve as Senior GIS Analyst in performing business analysis, database design/development, data migration, quality control, documentation, training, and technical support tasks.

SCOTT DOAN – Emergency Services Consultant | As Senior Public Safety Consultant, Mr. Doan applies his understanding of fire, police, and EMS business operations to advanced information system solutions. He will participate in needs assessment interviews for public safety and contribute to strategic commendations. His expertise is with integration of common operating picture, CAD integration, mobile GIS, site plans, and other project activities related to emergency management. He has managed large information systems operations, public safety CAD implementations, CAD integrations and fire station construction projects.

PROJECT UNDERSTANDING

Understanding of the Existing Environment

San Mateo County has a longstanding GIS program serving many departments. In 2013, an Esri Geospatial Assessment engaged County representatives in a process to identify departmental and enterprise desires, needs, and recommendations.

This study successfully engaged departments and identified a vision for a more integrated and capable GIS program using standard platforms, services consolidation, and integration of business systems with GIS. The County recognizes that many datasets serve multiple business processes, departments, and end users. The opportunity for GIS to improve information consistency and availability is seen to be significant and contribute to improved information management efficiency and quality.

GIS Business Goals Identified from the Study

- Amplify GIS expertise and ISD capabilities
- Promote authoritative data sources, such as site addresses and master patient/client index
- Simplify access and sharing of information products (maps, reports, apps)
- Empower County knowledge workers to create business focused information products
- Provide GIS governance structure
- Establish a GIS platform that can grow with the County's needs
- Apply industry best practices

These goals are consistent with good GIS program management strategies and provide direction to this project plan to provide greater specificity for achieving the goals. The County has conceptualized the project approach by defining the following key service goals of this plan.

Requested Services Contributing to Enterprise GIS

- Identify GIS business objectives and current business processes/workflows
- Determine the technology and system infrastructure readiness to meet GIS business objectives
- Determine GIS database readiness to meet the GIS business objectives
- Determine organizational readiness to meet the GIS business objectives
- Develop enterprise GIS Implementation Plan to meet the GIS business objectives

The County ISD GIS Team provides central GIS support and consulting services to all other County departments. Responsibilities include enterprise geodatabase maintenance, application development, public map production, and maintenance of framework GIS data such as street centerlines.

Esri is the primary GIS platform with desktop and server licenses with Oracle back-end database. Intergraph GeoMedia and GeoMedia Webmap legacy systems are still supported. Integration of GIS with other business systems (Hansen, Accella Automation, FileNet, etc.) can provide capability improvement and use of geospatial tools to enhance information access and information comprehension through map displays.

The opportunity ahead is to modernize the enterprise GIS program so that information access is further enriched through information integration, and simplified using modern web and mobile technologies. The future GIS will present information with greater relevance to the specific user, their task and location. This “contextual GIS” will increase the utility of GIS and drive greater work process efficiencies.

Project Approach

Developing the enterprise GIS strategy and addressing the County’s specific program objectives will be accomplished through processes Psomas has used and refined on other enterprise GIS planning projects. The methodology is heavily weighted towards engagement with stakeholders to understand business needs, identify GIS opportunities, and facilitate the common understanding of individual departmental benefits and why an enterprise GIS program can deliver an effective and sustainable program for the County.

Psomas sees the project as one key phase in the progression of steps from past GIS practices to the design, implementation, and operation of the future enterprise GIS. Thus, our processes and associated deliverables will be targeted to support decision making for near term actions, provide solid documentation to facilitate near-term project startup, and clarify the vision to guide longer term decisions.

Project Challenges

From our reading and research, Psomas believes the County is well staged to participate in this planning process. The setting is right to proceed based on a history of incremental GIS development, a focus towards enterprise GIS, and a clear set of project expectations articulated through the RFP.

Expected challenges are most likely around project logistics of engaging each stakeholder group throughout each of the project tasks. Psomas’ methodology of engagement will facilitate County participation and concurrent learning of findings and opportunities.

PROJECT PLAN

This section defines the project task plan and deliverables proposed by Psomas. The plan is consistent with the task guidance outlined in the RFP. The sequencing and grouping of tasks is somewhat different from the RFP guidance. Our structure will help the County stakeholders engage, understand, and agree incrementally to the planning building blocks of requirements definition, opportunity assessment, and plan development.

The Psomas Team will accomplish project objectives through the following methods:

- Fulfillment of the enterprise GIS Strategic Plan with a review of the current environment, prior planning documents, database architecture, system components and configuration, GIS work processes, and discussions with the County
- Identify needs
- Recommend GIS strategies, projects, and management methods
- Justify recommendations with cost benefit analysis
- Communicate the plan, outcomes and requirements to executives, management, and stakeholders

Review

- Current GIS and IT systems and operational processes
- GIS data organization, content, and quality
- Mapping, analysis, GIS integration, level of use, and user satisfaction with GIS
- Current mapping and GIS program effectiveness
- Existing GIS procedures, infrastructure, software, and staff skills

Identify

- External influences for the utilization of GIS technologies for the County
- GIS internal stakeholders and external stakeholders
- Gaps in data, GIS applications, training, technology, and process needs
- Regional GIS needs and opportunities

Analyze

- Business requirements and benefits
- Data and system gaps

- Organizational capabilities and future needs
- Standards and processes for deploying and managing GIS

Recommend

- GIS alignment with County strategies and IT systems
- GIS maintenance and support streamlining opportunities
- GIS program initiatives for three to five years
- Identify GIS strategic, tactical and operational actions
- GIS data priorities and actions
- GIS applications and services
- GIS integration with IT systems
- GIS governance and organization
- GIS resource plan
- Prioritized GIS projects with phasing, costs, resources, activities, schedule and outcomes
- Recommend regional GIS programs and engagement processes
- GIS program communication and support plan
- Recommend GIS hardware and software needs

Justify

- Implementation projects with a cost/benefit analysis
- Project phasing based on benefits and alignment with County and regional business and IT strategies

Communicate

- A final enterprise GIS Strategic Plan program incorporating all aspects of this study

Project Outcomes

At the conclusion of this project, the following will be addressed:

- Updated Vision for Enterprise GIS
- Mission statement for the Enterprise GIS program
- Definition of program stakeholders and business needs
- Gap analysis between current program and needs
- Major strategies to align program with business needs
- Enterprise GIS program governance and operations structure
- Enterprise GIS program charter
- Recommendations for a resilient and scalable GIS architecture

- Data management plan
- Enterprise database design and architecture strategy
- Data access methods and policies
- Basemap management plan including parcels, addresses, and streets
- Application development strategy, methodology, and tools
- GIS related position job descriptions, career paths, and development curriculum
- Implementation roadmap defining projects, outcomes, costs, resources and schedule
- Stakeholder engagement and support plan
- GIS Program Operational Report Card criteria and process

Project Plan Task Summary

TASK 1 | Project Initiation and Management

TASK 2 | Departmental and Enterprise Needs Assessment

TASK 3 | Enterprise GIS Strategic Foundation Plan

TASK 4 | Enterprise GIS Implementation Plan

TASK 1 | Project Initiation and Management

Objectives

- Successful start to the project and clear understanding of tasks, schedule, points of contact, roles, and responsibilities
- Preparation of work for subsequent tasks
- Effective project monitoring and routine progress reporting

This task includes project start-up, ongoing project administration activities, and preparation work for tasks that follow:

Kickoff Meeting

In coordination with the County’s project manager and team, Psomas will facilitate a project kick-off meeting discussing the project plan in detail. This meeting will be an opportunity to reach consensus and clarify project objectives, roles, schedule, and management practices.

Orientation Seminar

Psomas will conduct a two-hour GIS orientation seminar open to all County staff and any representatives from outside organizations which the County may wish to invite. This seminar will explain key GIS concepts and show examples of GIS applications for local government and utility organizations, opportunities for benefits, organizational impacts, and implementation issues. County past successes and vision elements from the Esri study will be included for County contextual relevance. The seminar will provide sufficient grounding in GIS to provide ideas for the future, increase interest in the project, and encourage active participation.

Project Management

Psomas project management activities include regular project oversight and communications which include monthly status reports, weekly activity list updating, and frequent communications with the County project manager and team via email, phone, web meetings, and on-site meetings.

Online Management Tools

Psomas will configure our online project collaboration site called Mavenlink to serve as a project repository for all deliverables and shared documents. Our online issue tracking system will be used as an action punch list to track open items. Each item is assigned to a specific individual within Psomas or the County and will be reviewed regularly to assure items are accomplished.

Mavenlink tracks site changes and sends email notifications to the project team.

Deliverables

- Kickoff Meeting
- Orientation Seminar
- Weekly project activity list updating and communications
- Monthly status report and billing
- Implementation and operations of the project management online tools

TASK 2 | Departmental and Enterprise Needs Assessment

This task defines and documents individual departmental GIS needs and aggregate enterprise GIS needs based on the findings of the departmental needs.

Departmental GIS Needs Assessment

Psomas will engage County stakeholders to determine individual and aggregate business needs relevant to geospatial data and solutions. We will upon the 2014 geospatial assessment, document business needs, application opportunities, data needs, and workflows. At the conclusion of this task, foundational needs for GIS and specific application opportunities will be identified.

Psomas will meet with departments to conduct needs assessment interviews. Business units within the departments will be engaged individually to enable focusing on each departmental function and business need. Psomas will build upon prior findings and seek to determine existing business functions and GIS and mapping processes, and to identify primary business workflows, GIS and integration opportunities, and data needs.

The engagement approach is focused to the department so they understand specifically what GIS can do to support their individual business needs.

Psomas will conduct one or more interviews with the following departments lasting from 30 minutes to two (2) hours, depending on the groups function:

- Public Works
- Clerk, Assessor, Recorder, Elections (CARE)
- Planning and Building

- Health System
- Information Services Department (ISD)
- Sheriff
- Probation
- Human Services Agency
- Parks
- Housing
- Public Safety Communications
- Potential GIS Users (Controller, HR, LAFCo, CMO)

Prior to the meetings, Psomas will distribute a meeting invitation outlining the needs assessment objectives and approach. Meeting scheduling will be accomplished with support of the County to develop a compact schedule where Psomas can meet with most departments during a given week. Some follow-up meetings will be necessary to provide clarification.

Interviews will begin with ITD to collect as much existing inventory information as possible about existing applications data, processes, challenges, and opportunities. This foundational understanding will be complemented with system documentation, the Esri study, and other sources of information. Engagement of ISD will begin with the project kickoff meeting in advance of the broader departmental meetings to provide Psomas time to review and synthesize the information.

The structure of the departmental interviews is first focused on existing business processes, use of GIS and opportunities, gaps and shortcomings, data and data management practices, and a review of technology skills, culture, and future expectations. The meetings are fast-paced but Psomas' interviewing methods will strive to engage departments through relevant discussion and illustration of opportunities.

Psomas will prepare a summary memorandum outlining the findings of the interviews and will present to the departments for reviews and comment. The memorandum will be structured consistently for each department to facilitate aggregation of the information when assessing the enterprise program needs.

The memorandum will include:

- Primary departmental business functions and workflows including interdepartmental and interagency connections
- Current GIS and technology use including a listing of systems and applications
- GIS application opportunities
- Impact of mobile GIS on department staff and those with whom they interact
- System integration opportunities and departmental priorities for them
- Data needs and data management responsibilities
- A profile of departmental users representing the diversity of management users, office workers, and field workers
- A general identification of technology competency

- The department’s vision for the future GIS and what this study must do to be successful
- Risks, challenges, and concerns

A draft version will be presented to the department in MS Word to review and revise as needed. Psomas will review comments and revise the memorandum accordingly. Follow-up phone calls, emails, and meetings may be needed to assure departmental needs are thorough.

Define Enterprise GIS Needs

Psomas will compile and present enterprise information needs based on the individual department needs. This vital step identifies common needs for similar application functions, common data, and similar business processes.

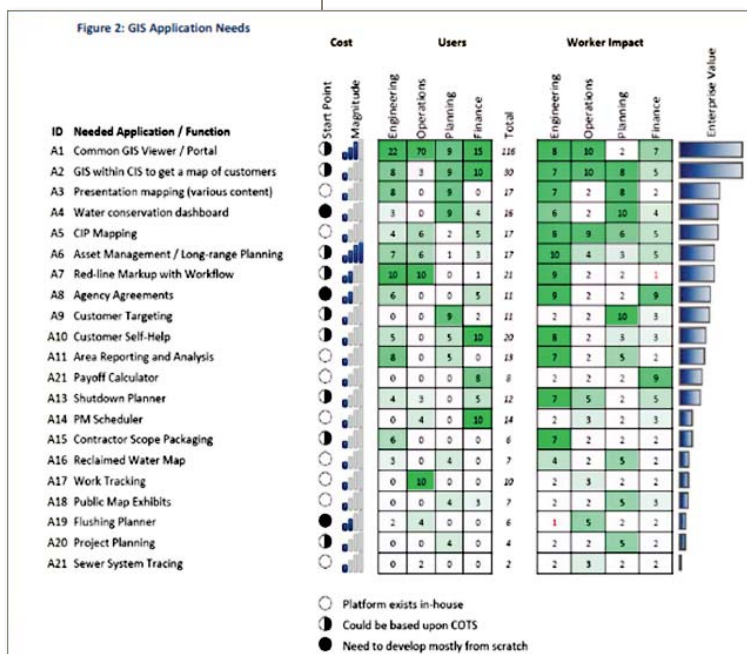
A matrix showing business functions to applications needs will be developed to represent departmental business processes normalized to enterprise processes (perform inspection, respond to incident or case location, issue permit, etc.). This product provides a list of potential applications in a form that clarifies the application uniqueness and common characteristics with other departments. Each application reference will be documented using the Information Product Description (IPD) as conceived by the County.

A data matrix by department is developed to clarify the data needs and who “owns” or updates the data and which departments are users. Each data source will be described briefly as to its source information, responsible data authority, basics of data content, and identification of its primary purpose. Again, this format provides clarity to the level of data sharing that can guide prioritization. This will serve as the Master Data List (MDL) listing each data product and its constituent source data.

A draft of the enterprise GIS needs will be presented to the County and contrasted to individual departmental needs. This phase of work is intended to clarify collaboration and synergy priorities, as well as possible priorities for application and data among all stakeholders.

A worksheet will be provided for the County to identify the number of individuals

that would be impacted and the level of impact resulting from the deployment of the defined applications. Psomas will tabulate the responses and develop a benefit and implementation effort matrix similar to the graphic below. When sorted by benefit, potential priorities are displayed at the top of the chart with cross-departmental applications being prevalent.



Deliverables

- Departmental Needs Assessment Interviews
- Departmental Findings and Opportunities Memoranda
- Enterprise GIS need report

TASK 3. ENTERPRISE GIS STRATEGIC FOUNDATION AND PLAN

Objectives

- Identification of major enterprise GIS Objectives, Goals, and Strategies
- Compile Countywide aggregate inventories of data, applications, software, and IT infrastructure
- Evaluate enterprise GIS governance and management framework
- Evaluate enterprise GIS architecture, data, applications, workflows, and IT infrastructure

A long-term, strategic foundation for the County's enterprise GIS program establishes a basis for more detailed implementation planning, "The Roadmap". Psomas will work with the County's project team to create a strategic foundation and to identify specific initiatives for enterprise GIS. The strategic foundation establishes a starting point and a basis for the implementation planning. We will work with the County's project participants to reach consensus on strategic foundation elements we have identified below:

- **Vision Statement:** Description that gives a picture of long-term results for the GIS program
- **Mission Statement:** Brief statement defining intent and action to achieve vision
- **High-level Goals:** 5 to 10 concise goals addressing clear end-results for organizational, governance, and technical areas
- **Strategic Initiatives:** High level strategic initiatives will fulfill the Enterprise GIS Goals
- **User/Stakeholder Environment:** Identification of how County departments and external parties may use the County Enterprise GIS services or provide products and services to support the GIS program
- **Target Governance and Organizational Structure:** Summary of the organizational design that defines the long-term target for enterprise GIS development
- **Target Architecture Structure:** Summary of the organizational design that defines the long-term target for enterprise GIS development for a sustainable GIS program
- **Staff Resource Development:** A staffing strategy will be presented that defines staffing levels, organizational placement, and a training and staff development plan addressing Countywide needs

The format and content of the report will address the elements represented in the RFP and elsewhere in this proposal. Each of the Enterprise GIS Challenge and Opportunity areas will be addressed with needs and recommendations. This concise presentation of the plan will be useful for presenting and sharing the plan with most of the stakeholder groups. The detailed narrative plan will continue to serve the County as a guide for implementation.

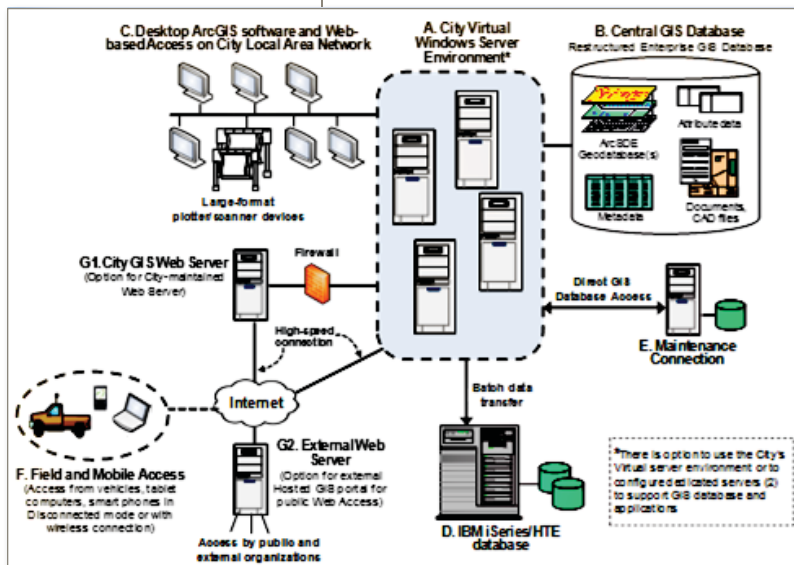
Psomas will identify specific initiatives for enterprise GIS development which relate to one or more of the high-level goals (e.g., major GIS database development or improvements, application development priorities, organizational development areas). These initiatives are the basis for implementation planning. That implementation plan will describe multiple implementation projects supporting the Enterprise GIS initiatives.

Perform Technology Assessment of Existing Condition and Needs

During this activity, Psomas will evaluate the readiness of the system infrastructure (hardware, software, and network) to support enterprise GIS implementation. The County will supply an inventory of GIS technology components and their configuration. Psomas will meet with ISD to discuss the environment and understand data, security, and application management policies that will affect the GIS. A review of server redundancy, load balancing, and separation of development, test, and production environments will be performed.

Psomas will prepare a technology conceptual system design with implementation alternatives as appropriate. The design will include:

- Define a technology architecture strategy aligned to existing and emerging technology trends
 - Level of centralization/distribution of data and computing resources
 - Role of web-based and host-based services (cloud and ArcGIS Online) for internal and public access
 - Mobile application deployment for County staff and public access
 - Determine hardware requirements to support GIS applications and procedures including consideration of cloud or hosted infrastructure needs
 - Specific GIS software products and licensing consolidation opportunities, enterprise licensing
 - Network access supporting adequate response time and access for County users including those with wired network access and users accessing field-based and mobile applications
-
- Changes, improvements, and possible reorganization of the County's ArcSDE geodatabase to support improved data maintenance and access, performance, and failover
 - Role and location of data stewards and custodians with major roles in updating GIS data
 - Requirements and approaches for integration and data exchange between GIS and non-GIS systems, applications, and external Web-based services including ERP, land development plan/permit tracking, infrastructure asset management systems, and other external systems for which GIS integration is determined to be important
 - Compatibility and coordination with overall County IT architecture and standards
 - Present phasing for technology enhancement and replacement that links implementation initiatives with technology support needs



Perform Organizational Rediness Assessment

Psomas will conduct an organizational readiness assessment based on the emerging enterprise GIS program definition. This assessment will identify the enterprise GIS support needs and organizational processes needed to implement and maintain a cross-departmental GIS program.

Implementing an effective organizational structure and management is critical for a successful and sustained enterprise GIS program. Psomas will address non-technical aspects of the County enterprise GIS program—the organizational, management, and policy framework important to fully realize the benefits from an enterprise IT program. Psomas will recommend an organizational structure defining enterprise GIS management, roles and relationships among County offices and external organizations, and staffing roles. We will also recommend GIS policies and management practices that will support GIS development and operation and Countywide coordination (including management oversight, technical committee and work groups, and user groups).

Staffing levels for the enterprise GIS development and ongoing operations will be defined. Existing resources and service capabilities will be identified, as well as possible additional resource needs. Job descriptions, training and career development recommendations will be made for key GIS program staff.

Areas for consultant support will be recommended when appropriate to fulfill specialized functions and one-time needs. A training and support program including user groups will be recommended for the array of Countywide users. Consideration to the changes in GIS software platform and web-based solutions will shape the recommendations.

ISD GIS Team

Psomas will define the responsibilities of the ISD GIS team addressing system support, application development and support, enterprise data management, and other defined responsibilities. Each function will be outlined as to best practices for process definition.

- Developing training plan to support the enterprise GIS implementation
- Identifying internal support procedure
- Developing data and application release procedures
- Producing development decision criteria
- Defining optimal staffing levels and skill sets required

Departments

Psomas will provide recommendations for staff support and development within departments to support departmental processes including data maintenance, data analysis, and data coordination between business systems and GIS to keep the spatial and attribute data synchronized.

Perform Enterprise GIS Database Readiness Assessment

This activity will expand on the data inventory developed during earlier phases of the departmental needs assessment and the synthesis of enterprise GIS data findings. The GIS data list will be reviewed and discussed with County representatives knowledgeable in each of the databases to assess data spatial and attribute completeness and accuracy and capacity to support defined application needs.

Framework data are data that are key to enabling enterprise applications. Examples include aerial imagery, street centerlines, parcels, political boundaries, and other commonly used data. The framework data will be evaluated with greater scrutiny than data that serve limited users. Psomas' evaluation of the framework data will include a high level data model review as well as broader discussion of content and accuracy.

Each data set will include a recommended action indicating data model or data enhancement needs based on the analysis.

The findings of the assessment will address the needs and current capability of the data models to support integration with ArcGIS online and integration with internal County business systems. For example, the utility data models need to accommodate a unique and persistent asset-ID value to integrate with the Hansen CMMS.

Psomas will recommend broad data management procedures and design standards that apply to the GIS enterprise wide data. The recommendations will outline data update processes, quality management, and design practices. Psomas will provide recommendations for feature level metadata to track updates and record variable data quality.

Psomas will prepare a preliminary “strawman” draft of the strategic foundation elements described above and submit this to the County. In an interactive session with County project participants, we will entertain comments, build consensus, and finalize the strategic foundation.

Deliverables

- GIS Strategic Foundation Report
 - Enterprise Information Product Description (IPD)
 - Enterprise application matrix with cost and benefit indicators
 - Enterprise GIS data list and matrix (MDL)
 - Enterprise GIS needs report
 - Technology readiness assessment and recommendations
 - Conceptual system design
 - Database assessment and recommendations
 - Conceptual database design
 - GIS position job description and roles
 - Training plan recommendations
 - Enterprise GIS governance recommendations

TASK 4. ENTERPRISE GIS IMPLEMENTATION PLAN

Objectives

- Define enterprise GIS Vision and goals
- Define major strategies for addressing gaps and fulfilling the vision
- Develop recommendations and priorities enabling the strategies
- Recommend governance and policy framework for a sustainable enterprise GIS program
- Present staffing and training needs

- Identify interagency collaboration opportunities
- Present a high level timeline for implementation
- Document cost and benefits of implementation elements
- Identify program risks and organizational impacts

This task will develop the enterprise GIS strategic plan that addresses the needs documented in previous tasks. The strategic plan defines the enterprise GIS program vision, goals, strategies, and core recommendations for major program elements, including applications, data, system integration, and GIS/IT infrastructure including mobile computing, staffing and training, and operations support. A section of governance, policies, and funding defines the program's operational framework.

Psomas will also recommend key opportunities and initiatives for interagency collaboration to improve the quality, outcomes, and value of the enterprise GIS.

The document describes the enterprise GIS needs and will include:

- **GIS Situation Summary:** A summary of the aggregate state of GIS will be presented as a high level summary with an overview of the departmental needs.
- **GIS Applications:** Document current GIS applications and needs for improving/upgrading existing applications, new applications, and opportunities for increased accessibility through mobile and web applications.
- **Geographic Data:** Compile a matrix of current GIS data and sources, note needs for improvements in quality, standardization, accessibility, and level of existing GIS data maintenance, and identify requirements for additional spatial data not currently available.
- **Integration with "Non-GIS" Systems:** Document requirements for GIS integration with external databases and software including FileNet, Hansen, Accella, and CAD.
- **System Infrastructure:** Review current server hardware, software (including review of current licensing), and network components supporting GIS. Evaluate security, redundancy, load balancing and overall scalability of the environment. Identify requirements for fulfillment of departmental GIS needs for Enterprise GIS framework.
- **Organizational and Staff Resources:** Review current GIS organizational structure, management, and staffing and requirements for future enterprise GIS governance, improved coordination among County offices, and staffing needs.
- **Identification of Gaps:** Summarize gaps in technical infrastructure, applications, data, staffing, governance, and Countywide coordination between the current GIS environment and future enterprise GIS program

The implementation plan will cover all areas of Enterprise GIS development and deployment:

- A list and description of tasks that describe the steps that must be taken for all areas of GIS implementation
- A definition of implementable projects that result in an increment of functional capabilities
- Relationships and dependencies among projects
- An identification of parties responsible for major elements of the GIS implementation, including County personnel and outside groups (e.g., vendors, contractors)

- A schedule showing the recommended timing of implementation tasks and major project milestones
- A cost spreadsheet with cost breakouts for staff, hardware, software, and services
- A business case that justifies GIS investments

The enterprise GIS Implementation Roadmap will be based on project definitions supporting the strategic goals and initiatives. Projects will be primarily driven by applications that address specific business needs. Other projects will be infrastructure or policy projects that improve the enterprise GIS operational foundation. Each project definition will include a definition, costs, schedule, and dependencies for software, services, staffing, data improvements, and IT infrastructure changes.

A prioritization matrix will be proposed and discussed with the County. Using the resulting prioritization guidelines, Psomas will organize a phasing plan for project implementation that structures the projects by fiscal year. Project dependencies will be defined and used in the scheduling process.

- **Project Description:** Concise text description of user access to the application and the major functions it performs. Non application projects will define changes to the infrastructure, data or other project elements.
- **Current Status:** Indication of the development status if already in planning, development, or use.
- **Primary Users:** The principal internal and external users of the application or products generated from the application.
- **Data Requirements:** The main GIS data layers, attribute data.
- **System Access Environment:** System environment from which the user will access the application (e.g., desktop, Web-based, field, or mobile access).
- **Integration Requirements:** Requirements for integration with an external database or software package.
- **Priority:** Qualitative ranking (Very High, High, Moderate, Low) based on a scoring of key factors (potential benefits, number of users served, business process impact, anticipated benefits, development complexity).

Table 4: Project Phasing by Fiscal Year

	Total	2012	2013	2014	2015	2016
Business Process Reengineering (BP)						
BP1: Design and document GIS workflows	100%	100%				
BP2: Business Process Reengineering	100%	50%	50%			
System Design and Specifications (DS)						
DS1: Enterprise GIS Design	100%		100%			
DS2: Business System Integration	100%	25%	25%	50%		
Application Development (AD)						
AD1: Portal framework	100%	15%	25%	30%	30%	
AD2: Area reporting analyst	100%		50%	50%		
AD3: Public map exhibits	100%			100%		
AD4: Maintenance manager	100%		50%	50%		
AD5: CSR viewer	100%			50%	50%	
AD6: Agreement manager	100%		50%	50%		
AD7: Planning analyst	100%					100%
AD8: Water conservation dashboard	100%					100%
AD9: Mobile Asset Management	100%	75%	25%			
Data Enhancement & Maintenance (DE)						
DE1: Map accuracy update	100%	10%	30%	30%	20%	10%
DE2: As-built record update	100%	10%	15%	15%	30%	30%
DE3: Utility infrastructure maintenance	100%		10%	40%	40%	10%
DE4: Reference data update	100%			50%	50%	
DE5: GIS data conversion	100%		100%			
GIS Operations (OP)						
OP1: Helpdesk	100%	100%				
OP2: Training and support	100%	100%				
OP3: Program management and coordination	100%	100%				
OP4: Policies and Procedures	100%	100%				
OP5: Technology support	100%	100%				
OP6: GIS Services	100%	100%				

A Microsoft Gantt Chart is a tool that may be used for plan revision and for monitoring and reporting on implementation status. This plan will cover all technical and non-technical aspects of GIS implementation: hardware and network set-up and administration, software acquisition and configuration, detailed technical design, database development/migration, organizational development, application development, preparation of management practices and standards, staffing, and training. Costs for implementation will be estimated and presented in a Microsoft Excel workbook. This will take into account hardware/software purchases, contracted costs for technical design and development, County staff resource requirements, database development or purchases, system maintenance costs, and other GIS costs.

Business drivers will be identified with the specific roadmap recommendations to indicate where existing and future pressures on County operations may be supported with the GIS. A GIS “business driver” is a major need, program, service area, opportunity, or challenge which GIS technology and data can support. Business drivers may reflect strategic or operational goals of the organization, user or customer service needs, legal or regulatory mandates, external conditions (economic, social, political), or other organizational factors.

Psomas will develop a high-level “business case” for Countywide enterprise GIS directed primarily for senior County management personnel and elected officials that provides information on long-term benefits of the Countywide GIS program. Its purpose is to help justify the investment of time and resources that are defined in the Implementation Plan.

The business case will describe the nature and purpose of enterprise GIS, its positive, long-term impact on County business, and the types of benefits that will be derived from it. These include such benefit areas as: a) staff efficiency gains; b) cost-avoidance; c) improved customer/public response and services, d) enhanced public safety; e) cost savings in infrastructure maintenance; and f) enhanced land use decisions. This business case will be concise with minimal technical detail but with a focus on applications, benefits, key business needs, support for County users, and enhancement to service provided to citizens and the business community served by the County.

A Draft Enterprise GIS Implementation Roadmap will be prepared for review by the County. Based on comments received, we will prepare a revised plan.

Implementation Plan Presentation

Psomas will prepare a presentation with the primary purpose of creating awareness about the enterprise GIS strategic goals and implementation approach and to garner support from County senior management and elected officials. We will focus on the strategic goals, positive impacts on County programs, the business justification, implementation timing, and cost/resource projections for implementation. Psomas will make a presentation to the Business and Information Technology Steering Committee or other senior management group as directed by the County project manager.

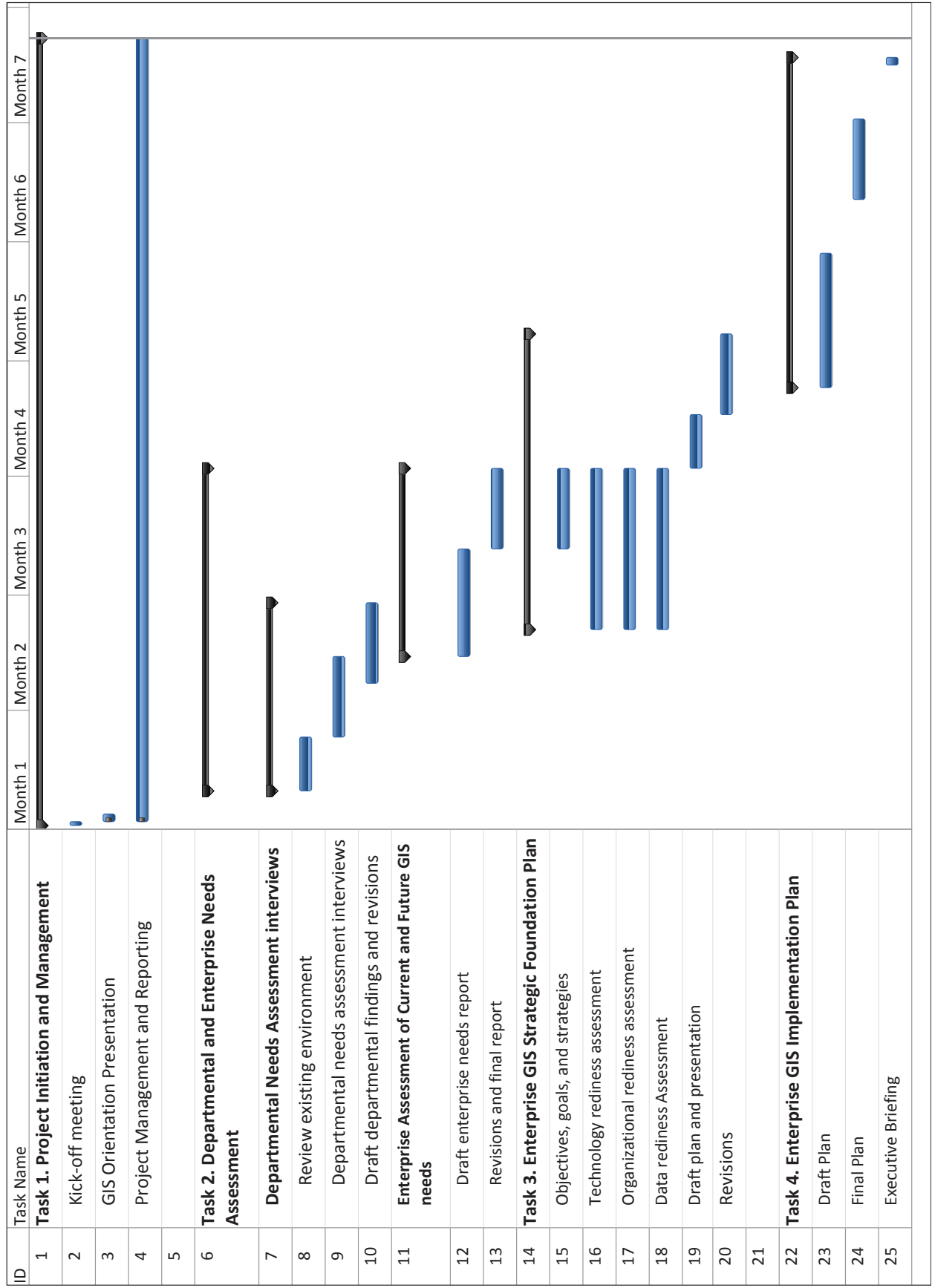
Deliverables

- Enterprise GIS Implementation Plan
- Final Presentation

PROJECT SCHEDULE

The project schedule, provided on the following page, is developed with consideration to logical sequence of tasks, total work effort, and time for County review and participation. Each task includes Psomas’ presentation of deliverables and County review.

PROJECT SCHEDULE



Cost Proposal

PROJECT FEE

As presented earlier, we have assigned senior staff who have specific technology, planning and subject matter expertise. These individuals are involved throughout the project to provide continuity from the beginning of the project to the end.

Psomas has prepared fee (provided on the following page) based on level of effort for each activity by person. The hour estimates are established based on prior experience, the scope of work, and providing sufficient time for Psomas to be onsite with the County and interact with County stakeholders throughout the project.

Although the cost estimating approach begins with costs derived by hours, Psomas is proposing a fixed price proposal to deliver the scope of services presented within this plan. The following detailed spreadsheet shows labor rates associated with each team member. Total hours and costs are presented for each task.

The hours by task provide the County an opportunity to review the proposed effort recommended by Psomas. Psomas is willing to discuss the scope and effort if County believes the effort by task is too high or too low.

The fixed price for this project is \$157,600.

FEE PROPOSAL

					CRAIG GOOCH Project Director	HAN CHU Project Manager	BRIAN HOEFER Senior Consultant	PETER CROSWELL Senior Consultant	KEITH PALMER Application Manager	ALEX EVETT GIS Analyst	LIZ BLAIR Project Assistant
TASK NO.	DESCRIPTION	TOTAL COST	LABOR COST	HOURS	\$200	\$185	\$180	\$140	\$165	\$145	\$75
TASK 1 Project Initiation and Management											
1.1	Kick-off Meeting	\$1,540	\$1,540	8	4	4					
1.2	GIS Orientation Seminar	\$3,395	\$2,710	14	8	6					
1.3	Project Management and Reporting	\$7,400	\$7,400	40		40					
TASK 1 Total		\$12,335	\$11,650	62	12	50	0	0	0	0	0
TASK 2 Department and Enterprise Needs Assessment											
2.1	Information Collection Coordination	\$2,340	\$2,340	12	8	4					
2.2	Departmental Interviews and Reporting	\$34,690	\$29,820	176	60	60	24				32
2.3	Enterprise GIS Needs Report	\$16,760	\$16,760	88	40	24	24				
2.4	Preparation and Revision of Enterprise Report	\$5,260	\$5,260	28	8	12	8				
TASK 2 Total		\$59,050	\$54,180	304	116	100	56	0	0	0	32
TASK 3 Enterprise GIS Foundation Plan											
3.1	Summary of Application, Data, Integration Needs	\$7,675	\$7,190	46	8	6		32			
3.2	Technology Rediness Assessment and Design	\$9,520	\$9,520	60	12			32	16		
3.3	Organizational Rediness Assessment	\$9,480	\$9,480	56	16	6		24	2		
3.4	Data Rediness Assessment	\$8,880	\$8,880	54	6		16		8	24	
3.5	ID Gaps/GIS Situational Assessment and Needs Report	\$6,920	\$6,920	40	16	8		16			
TASK 3 Total		\$42,475	\$41,990	256	58	20	16	104	26	24	0
TASK 4 Develop Enterprise GIS Strategic Plan											
4.1	GIS Vision, Goals and Mission	\$4,390	\$4,390	26	8	6		12			
4.2	Strategic Initiatives	\$3,840	\$3,840	24	8			16			
4.3	Define Projects Timing and Roles	\$9,160	\$9,160	56	16	8		32			
4.4	Budget and Business Case	\$5,330	\$5,330	34	8	2		24			
4.5	Schedule	\$1,520	\$1,520	10	2			8			
4.6	Plan Narrative	\$6,040	\$6,040	38	6	8		24			
4.7	Presentation and Discussion	\$5,740	\$5,740	32	12	12		8			
4.8	Plan Revisions	\$4,640	\$4,640	28	12			16			
4.9	Executive Presentation	\$3,080	\$3,080	16	8	8					
TASK 4 Total		\$43,740	\$43,740	264	80	44	0	140	0	0	0
PROJECT TOTAL		\$157,600	\$151,560	886	266	214	72	244	26	24	32

Section G: Appendix

Résumés..... **37**

Geocortex Design and Development..... **51**

Han Chu, PE, PLS, RE | Psomas

Project Manager



REGISTRATION

1995/Professional Engineer/
Civil/CA #53166

1997/Professional Land
Surveyor/CA #7334

2004/RE/CA #01467543

EDUCATION

1999 / MBA / Business
Administration / University of
California, Irvine

1991 / BS / Civil Engineering
/ California State Polytechnic
University, Pomona

Mr. Chu will serve as Project Manager and will serve in a consulting capacity in the GIS needs assessment and strategic planning processes.

Mr. Chu is the Spatial Technology Solutions Team Leader and has been with Psomas for 16 years of his 24 years of professional experience. He has a Bachelor's degree in Civil Engineering and an MBA in Information and Technology Management. He is responsible for program oversight, project management, and consulting services in technology planning, development, implementation, and sustained operations. Han has lead or served as a principal consultant on over 25 major GIS needs assessment and strategic planning projects. He has technical expertise in operations assessment, process analysis and engineering, conceptual data modeling, feasibility studies, strategic planning, implementation planning, and change management.

Relevant Project Experience

GIS Strategic Planning Project Summary

- **County of Santa Clara, CA:** Countywide GIS Strategic Plan
- **County of Santa Clara, CA:** Integrated Basemap Maintenance Program Plan
- **Santa Clara Valley Water District:** Enterprise GIS Needs Assessment Plan
- **Centre City Development Corporation, San Diego, CA:** Enterprise GIS Implementation
- **City of Dublin, CA:** Enterprise GIS Needs Assessment Plan
- **Orange County Sanitation District:** Enterprise GIS Strategic Plan
- **City of Yuma, AZ:** Enterprise GIS Strategic Plan
- **County of Los Angeles, CA:** Land Information System Strategic Plan
- **City Burbank, CA:** Land Data Management Plan
- **County of Los Angeles, CA:** Solid Waste Information Management System
- **Los Angeles County Sanitation Districts:** Enterprise GIS Implementation Plan
- **City of Yuma, AZ:** Enterprise GIS Strategic Plan
- **Inland Empire Utilities Agency:** Enterprise GIS Planning and Implementation
- **City of South Gate, CA:** Enterprise GIS Strategic Plan

GIS Strategic Plan, City of Dublin, CA: Project Manager and consultant for city-wide GIS needs assessment and strategic plan. Developed strategies for expanding existing GIS program to enhance information access and information integration serving departments throughout the City.

Enterprise GIS Strategic Plan, Orange County Sanitation District, CA:

Project Manager and Lead Consultant responsible for the development of the enterprise GIS strategic plan. The strategic planning required needs assessment through over 40 interviews with highly engaged and motivated stakeholder groups. The Enterprise GIS Strategic Plan selected top five GIS projects to be initiated with the detailed implementation plan. In addition, the project required a feasibility assessment for a regional cooperative that will develop, manage, and oversee data sharing policy and practices among participating local agencies and special districts.

Enterprise GIS Strategic Plan, City of Yuma, AZ: Project Manager and Lead Consultant responsible for the assessment of the City's strategic needs and the development of the enterprise GIS plan. The project included eight City departments to assess the enterprise GIS needs, collaboration/data sharing opportunities,

organizational and cultural constraints, long-term strategic plan, and a short-term tactical plan for sustainable program implementation. Psomas facilitate, including the creation of, the GIS steering committee to provide oversight, resolve conflicts, and ensure citywide support to the plan.

GIS Implementation Services, County of Santa Clara, CA: Project Manager and Lead Consultant responsible for implementation of GIS strategic plan elements, that enable the County to develop, maintain, coordinate, publish, and distribute GIS basemap for regional agencies and stakeholder. The project included SDE/Geodatabase migration, maintenance procedures and manuals development, process automation through Oracle triggers and scripts, GIS web portal design and development, ArcIMS implementation, and training services.

Enterprise GIS Needs Assessment Plan, Santa Clara Valley Water District, CA: Project Manager and Lead Consultant responsible for the development of GIS Needs Assessment Plan. The project included current environment assessment through interviews with 45 business units, GIS needs identification and validation, enterprise GIS program design, SDE/Geodatabase migration strategy, and tactical plan for implementation and operations of a sustained enterprise GIS program.

GIS Modernization, Alameda County, Oakland, CA: Project Manager responsible for overseeing 15 separate projects that include GIS data development, web-based application design and development, operations support of existing GIS systems, and project coordination with subcontractors and the County.

“Map my County” Application Development, County of Riverside, CA: Project Manager responsible for Geocortex Essentials public and internal website development providing access to property information. The project requires significant interdepartmental coordination, data modeling, application development, and quality control.

Facilities GIS Basemap Development, University of Southern California, Los Angeles, CA: Project Manager and Lead Consultant responsible for the development of GIS basemap for USC’s campus planning and facilities management departments. The project included data collection from various sources, database development, field survey and verifications, and customized applications to access the parcel, structures, and utilities information.

Enterprise GIS Implementation, Centre City Development Corporation, San Diego, CA: Project Manager and Lead Consultant responsible for implementation of the Enterprise GIS at CCDC. The project included design and development of the unified data repository, development and implementation of GIS web portal, and departmental applications that interlinks with other enterprise systems and databases. Psomas also facilitated and supported the GIS technology committee in organizational, operational, and oversight issues to ensure the enterprise-wide and sustainable deployment.

Enterprise GIS Implementation Services, Inland Empire Utilities Agency, CA: Project Manager and Lead Consultant responsible for implementation of GIS strategic plan elements. The project included facilitation and development of enterprise GIS data management policies and standards, implementation of ArcIMS GIS web portal, and ongoing application enhancement and/or development services.

Enterprise GIS Implementation Plan, Los Angeles County Sanitation Districts, CA: Project Manager and Lead Consultant responsible for the development of the Districts-wide GIS implementation plan. The implementation plan outlines a road map and identifies tasks, requirements in systems and organization, phasing, schedule, and budget.

Craig Gooch | Psomas

Project Director/Senior Consultant



EDUCATION

BS/1978/Geography/University of California, Riverside, CA

PROFESSIONAL AFFILIATIONS

California Geographic Information Association

Geospatial Information Technology Association

Urban and Regional Information Systems Association

Bay Area Automated Mapping Association

Mr. Gooch leads the Information Technology Consulting practice at Psomas. He provides consulting services supporting development and integration of information systems including GIS. He specializes in enterprise GIS implementation, organizational consulting, and requirements analysis.

Craig has 36 years of experience developing and implementing GIS systems. His expertise is in designing and managing the implementation of solutions for government and utility geographic information management. He has designed, developed, and managed many GIS systems including project level, departmental, enterprise-wide, and regional cooperative programs.

Craig's broad experience covers all aspects of GIS implementation. His strength as a consultant is in his ability to effectively communicate with technical staff and management groups. The GIS consulting services that Craig excels in include helping organizations define requirements and strategies, developing consensus among project stakeholders, cost benefit analysis, contractor negotiations and management, and administrative program oversight.

Craig is a well-known industry leader who actively participates in professional organizations advancing the GIS profession.

Relevant Project Experience

- Enterprise GIS Implementation, County of Santa Clara, CA
- Parcel/Street Network Geodatabase Development, County of Santa Clara, CA
- Enterprise GIS Implementation, County of Alameda
- Regional GIS Cooperative Strategic Plan, SACOG, Sacramento, CA
- Enterprise GIS Strategic Planning, City of Sacramento, CA
- Emergency Notification System Implementation, California Water Service Company, San Jose, CA
- Enterprise GIS Planning and Implementation, California Water Service Company, San Jose, CA
- "Map my County" Application Development, County of Riverside, CA
- Enterprise GIS planning, design and implementation, Rancho California Water District
- Enterprise GIS Planning and Implementation, City of Fontana, CA
- Alameda Corridor Property Information Management System, Port of Los Angeles, Port of Long Beach, and the Alameda Corridor Transportation Authority, Los Angeles, CA
- Levee Management GIS, Sacramento Area Flood Control Agency

- Sewer GIS Implementation, Barstow, CA
- ePolicing Crime Mapping Services for City of Los Angeles, CA, Savannah GA, Dalton GA, and West Vancouver, BC
- Regional GIS, Orange County Fire Authority, CA
- Master Address Database Development, City of Glendale, CA
- Enterprise GIS Implementation, Inland Empire Utilities Agency, CA
- Enterprise GIS Design and Implementation, City of Citrus Heights, CA
- Enterprise GIS Implementation Plan, Los Angeles County Sanitation District, CA
- GIS Inspection Map System, LA County Public Works Department, CA
- GIS Master Plan, Yorba Linda Water District, Yorba Linda, CA
- Enterprise GIS Strategic Plan, Orange County Sanitation District, CA
- Land Information System Strategic Plan, Los Angeles County, CA
- Enterprise GIS Needs Assessment, Planning, and Application Design, City of Pasadena, CA
- Stormwater Management System, City of Santa Clarita, CA
- Enterprise GIS, City of Sunnyvale, CA
- iMAP Permit System Integration, City of Pasadena, CA
- Enterprise GIS Implementation, Mission Springs Water District, Desert Hot Springs, CA
- Enterprise GIS Requirements and Development, Suburban Water Systems, West Covina, CA
- GIS Strategic Plan, Metropolitan Water District of Southern California, CA
- GIS Implementation, WRD of Los Angeles County, CA
- Regional GIS Network for 190 Cities, Southern California Association of Governments, CA

Brian Hoefer, GISP | Psomas

Project Director/Senior Consultant



CERTIFICATION

Geographic Information
Services Professional

EDUCATION

1984/BS/Mechanical
Engineering/University of
Florida, Gainesville

PROFESSIONAL AFFILIATIONS

American Water Works
Association

Urban and Regional Information
Systems Association

Bay Area Automated Mapping
Association

Mr. Hoefer has over 27 years of engineering and information technology industry consulting and project management experience. Having participated in over 100 GIS development projects during his career, he has obtained a broad-based technical project management background specializing in geospatial technology, including enterprise system design and implementation planning; database design and development; application design and development; system installation, integration, and quality control; user training and rollout support. Many of the IT development projects he personally has managed have been ground-breaking, enterprise-level efforts with significant numbers of users crossing multiple departments or divisions.

Brian has over 20 years of domain experience in the water distribution, sanitary sewer, storm water management, irrigation, and water resource industries, as well as significant recent experience in the public works, transportation, and healthcare industries. Having worked for either ESRI Professional Services or a business partner of ESRI for the past 21 years, Brian is an expert at ESRI-based geographical information system (GIS) development applied to infrastructure management agencies specializing in integration of GIS with other key systems, such as engineering/drafting, maintenance management, hydraulic/transportation modeling, and finance/billing systems.

Relevant Project Experience

- Enterprise GIS Strategic Plan, El Dorado Irrigation District
- CMMS Upgrade Supplements, City of Sacramento Department of Utilities
- GIS and Facility Mapping, Georgetown Divide Public Utilities District
- Stormwater GIS Upgrade Project, Alameda County Public Works Agency
- Stormdrain Geodatabase Design, City of Phoenix
- Cityworks Upgrade Project, City of Sacramento Department of Utilities
- Planning GIS Upgrade Project, City of Williams
- GIS Development Project, City of Seal Beach
- Water System GIS Project, City of Martinez
- GIS Strategic Plan, Rancho California Water District
- Information Technology Assessment, Otay Water District
- Information Technology Assessment, Caltrans
- Work Management System, City of Oakland Public Works Agency
- California Healthcare Atlas, Office of Statewide Healthcare Planning & Development
- Website Development, East Bay Regional Park District
- Website Development, Sonoma County Water Agency
- Stormwater Database and Field Application Upgrade, City of Redding
- Spatial Transactions: 911, CAD, 511 Common Operating Picture Product Development
- eWRIMS Place-of-Use Data Solution, State Water Resource Control Board
- GIS Upgrade, City of Richmond
- GIS Upgrade Assessment, City of Riverside Utilities Department
- Water Rights Information Mgmt. System, State Water Resource Control Board

Peter Croswell | Croswell Shulte

GIS Consultant



EDUCATION

BA/Geography and Math/
Western Illinois University

MA/Geography/Geology/
Western Illinois University

IT Professional
Certificate/University of
Louisville

Numerous workshops and
focused training sessions in IT,
GIS, and management

PROFESSIONAL CERTIFICATIONS

Project Management
Professional

ASPRS Certified Mapping
Scientist

Microsoft Certified Professional

Master CIW Web Site Designer

Mr. Croswell has worked as a GIS user, manager, and consultant for the past 30 years. He is an expert in GIS and IT assessment, planning, design, and management support. Peter holds a Bachelors degree in Geography and Math, a Masters degree in Geography/Geology, and has significant postgraduate study in public administration, GIS, and information technology. In addition to his substantial education and project experience with GIS, he has substantial credentials in IT administration and management including recent completion of an IT certificate program at the University of Louisville (focusing on system and network administration, database management, user support, Web application design, and other IT areas). Peter is a certified Project Management Professional (PMP), GIS Professional (GISP), an ASPRS Certified Mapping Scientist (CMS), and holds several additional technical certifications (MCP, CIW Web Design). He held a now expired certification as an ENP from the National Emergency Number Association (NENA).

Peter has over 30 years experience as a government employee and consultant for a wide range of public and private organizations in North America. He has led or played a major role in over 150 projects involving GIS and IT assessment and planning, with a major focus on the GIS needs assessment, design, planning, standards and policies, organizational development, and implementation support. Peter's work on similar projects with local governments and utility organizations, is extensive and includes large and small organizations and jurisdictions throughout the USA and Canada.

Much of his work with local governments has focused on enterprise GIS design and planning, GIS-IT integration, multi-departmental coordination, and regional collaborations. Peter also has extensive experience in enterprise GIS design and planning for state and provincial governments including Idaho, Michigan, North Carolina, Ohio, Oregon, West Virginia, Wisconsin, and others. His international consulting experience includes a large number of GIS and IT design, planning and implementation support projects for local governments, regional agencies, and national ministries in Canada, western and eastern Europe, the Middle East, and China. His work in county-wide and regional GIS collaboration efforts includes projects at a statewide, multi-county, and county level involving a range of local governments, regional agencies, utility organizations, and other stakeholders. Peter work has covered development of organizational and governance structures and practices, legal issues impacting multi-organizational collaboration, development of agreements for data sharing and program collaboration, funding/financing strategies, and putting in place technical standards and infrastructure design to support enterprise GIS. He played a major role in the initial development and ongoing operations of two of the the country's leading multi-organizational GIS consortia—the Louisville/Jefferson County (KY) Information Consortia (LOJIC), and the Knoxville-Knox County-Knox Utilities Board GIS (KGIS). Peter has worked on 30 major enterprise GIS projects involving multi-organizational collaboration.

Relevant Project Experience

Enterprise GIS Planning and Implementation, City of Rochester, NY: Team member, with Esri, in an enterprise GIS assessment and planning project for the City of Rochester. Responsible for design of GIS governance covering organizational structure, management practices, standards and policies, and organization of GIS data stewardship.

Enterprise GIS Needs Assessment and Planning, City of Rio Rancho, NM:

Conducted needs assessment and business program evaluation for a Citywide GIS. Work includes evaluation of current operations, enterprise GIS design, strategic planning, and preparation of a detailed implementation plan. This project had a multi-organizational focus with evaluation of collaboration and data sharing the County, Regional Planning agency, and flood control district.

State of Idaho Spatial Data Infrastructure Program, Regional Resource

Centers: Provided consulting services in support of the Idaho Spatial Data Infrastructure (ISDI) to prepare business plans for the development and operation of Regional (multi-County) GIS Resource Centers (RRC) that will support GIS users in different regions of the state. Project managed by the Idaho State University GIS Center.

Information Consortium—Organizational and Financing Study, Louisville-Jefferson County, KY:

Evaluated the current organizational structure and funding mechanisms for LOJIC and developed alternatives for the future. Work included evaluation of financing and funding alternatives and possible changes to organizational and management structure to support program expansion.

Oregon Statewide GIS Utility Business Case, Design, and Plan: Project Manager in charge of a major design and planning effort for an improved statewide coordinating program for geographic information development and access affecting all levels of government and the private sector. Includes cost/benefit analysis, technical and governance design, implementation planning, and related work. Project included a large range of state, regional, and local agencies.

Trinidad and Tobago Ministry of National Security GIS Development:

Working on a project team for the Ministry for a GIS assessment, technical design, Implementation planning, and project management support for the development of an enterprise GIS to support their mission and business needs relating to public safety, emergency management, and security. This project includes Ministry divisions support law enforcement and fire safety, emergency planning and response, criminal investigations, and military affairs

Carroll County MD Information Technology Assessment and Planning:

Worked as with BerryDunn in carrying out a full assessment of current information technology systems and procedures and in the development of plans and specifications for IT improvements. As a member of the consultant team, Mr. Croswell focused on GIS, public safety, emergency management, and land development management systems. Specifications were provided for improvements to current GIS integration with the County's public safety dispatch system and GIS support for emergency planning and response.

Keith Palmer | Psomas

Technical Manager/Developer



EDUCATION

MS/1989/Geography/University of California, Riverside

BS/1986/Geography/University of California, Riverside

PROFESSIONAL AFFILIATIONS

Bay Area Automated Mapping Association

Mr. Palmer has over 25 years of experience working with GIS based applications, database solutions, and engineering web and GIS applications. He has extensive experience facilitating requirements gathering, translating user needs to system functional requirements. Keith has extensive experience installing and managing ArcSDE and ArcGIS Server system at City and County-wide Enterprise systems. For the last five years, he has served as the lead developer responsible for applications and ArcSDE management at Alameda County.

Keith's technical expertise includes ArcGIS Desktop, ArcGIS Server and ArcSDE installation, maintenance, and administration, ArcObject, ArcGIS Model Builder, ArcGIS Server Client APIs, Personal Geodatabase, File Geodatabase. MS SQL Server, MS Access, MySQL, PostgreSQL databases. Programming in C#, ASP.NET, Silverlight 3 and 4, Visual Basic 5.0 and 6.0, Python Scripting, Adobe Flex development and Action Script, CSS, JavaScript, ASP, PHP, MS Office, MS Visio, MS SQL Server Integration, IIS Administration, Amazon Cloud, Latitude Geographics Geocortex Essentials.

Relevant Project Experience

Enterprise GIS Implementation, Alameda County, Oakland, CA: Lead Programmer and Technical Manager responsible for implementation of the Enterprise GIS at Alameda County. Design and develop new Countywide Web GIS Viewer based on Geocortex HTML platform to serve multiple departments. Also designed, scoped, developed, and implemented multiple enterprise web mapping applications including: (1) Office of the Assessor Internet Parcel Viewer using Flash Builder 4, VB.NET, and the ESRI ArcGIS API for Flex; (2) mapping/query application for Alameda County Community Based Organizations website; this website was developed using VB.NET, Javascript, DHTML, AJAX, and the Google Map API; (3) the Alameda County election results mapping application developed using VB.NET, AJAX, SQL, and the ArcIMS Application Development Framework (ADF); and (4) Department of Environmental Health Facility Inspection application using Flash Builder 4, VB.NET, and the ESRI ArcGIS API for Flex. Installed ArcSDE and ArcGIS Server in an Enterprise-wide fail-over configuration. Loaded all county GIS vector and raster data layers into the ArcSDE geodatabase. Provide ongoing SQL Server/ArcSDE database administration as well as managing all ArcGIS Server map service creation, update, and caching.

SitStat Mobile Application Development, Alameda County Fire Department, Oakland, CA: Lead programmer and technical manager responsible for the design and development of emergency response application designated as "SitStat." This application replaces the pilot version built by ESRI. The new SitStat is a mobile application that enables multi-platform access by over 300 users, providing situational awareness to first responders through Computer Aided Dispatch system data, including location of units, incidents, and other pertinent information (such as dispatcher notes, hospital resources and services, weather data, etc.) This multi-platform includes network workstations (various web browsers), mobile tablets (iPad, Android), and handheld units (iPhone, Android).

Web Based Maintenance, San Diego County Regional Airport Authority, San Diego, CA: Lead programmer responsible for maintenance of a web based Quieter Home Program portal which is a Psomas hosted solution.

General Mitchell International Airport, Milwaukee, WI: Lead programmer responsible for designing, implementation, and maintenance of web based Noise Management Program portal which is a Psomas hosted solution. Designing and implementing web forms to collect data and web reports pertaining to the program. Designing and implementing a SQL Server database and ArcSDE and ArcGIS Server administration.

Great Falls International Airport, Great Falls, MT: Lead programmer responsible for designing, implementation, and maintenance of web based Residential Sound Insulation Program portal which is a Psomas hosted solution. Designing and implementing web forms to collect data and web reports pertaining to the program. Designing and implementing a SQL Server database and ArcSDE and ArcGIS Server administration.

Enterprise GIS Implementation, Civic San Diego Corporation, San Diego, CA: Lead programmer and technical manager responsible for implementation of the Enterprise GIS at CivicSD. The project included design and development of the unified data repository, development and implementation of GIS web portal, and departmental applications that interlinks with other enterprise systems and databases. Psomas also facilitated and supported the GIS technology committee in organizational, operational, and oversight issues to ensure the enterprise-wide and sustainable deployment.

Google Feed Application, Washington State Ferries, Olympia, WA: Designed and developed with a contractor the WSFFeeds application. This application reads the Washington State Ferry Web Service Feeds, extracts the schedule and other information, and then processes the information and writes it out to an FTP folder in the format that Google needs for their transit service. Google then copies the files and integrates them into the Google Transit app for use on the various Google web sites.

Enterprise GIS Design and Implementation, Contra Costa Water District, CA: Led geodatabase design and data conversion for untreated and treated water networks. Developed prototype treated water network geodatabase and GIS display/query application. Leading development of geodatabase design for treated water network and production version of GIS display/query application (ArcGIS Server). Installation and implantation of ArcGIS Server.

Enterprise GIS and Water Rights Permit Management System, Wyoming, State Engineer's Office: Performed requirements interviews and developed use cases for web-based permit application, review, and tracking systems with GIS components. Coordinated geodatabase development and transition to on-site maintenance. Installed and configured ArcSDE and ArcIMS. Loaded all vector and raster data into the ArcSDE geodatabase. On-going SQL Server/ArcSDE database administration.

Pascual Benito, PhD | Northgate

Technical Manager/Developer



EDUCATION

2008 / PhD / Hydrogeology
with Minors in Geophysics and
River Restoration & Ecology
/ University of California,
Berkeley

2001 / MS / Civil and
Environmental Engineering
/ University of California,
Berkeley

1994 / BA (with Honors) /
Geology / Amherst College

PROFESSIONAL AFFILIATIONS

Society of American Military
Engineers

Groundwater Resources
Association

Society of Engineering &
Environmental Geologists

American Geophysical Union

Dr. Benito has 14 years of experience in geospatial analysis, data visualization and data management in support of large environmental engineering projects, as well as performing research and development in the areas of surface and subsurface hydrology, contaminant transport and numerical modeling. He has expertise in fluid flow and contaminant transport modeling, and computer programming to support engineering analysis. He has experience in geospatial data management, mapping, and analysis with ArcGIS, including the 3D Analyst, Geostatistical Analysis, and Spatial Analyst Toolboxes, EVS, EQUIS, Microsoft Access and SQL database systems, and has managed the development and deployment of web-accessible environmental information systems for use in multi-stakeholder projects for public and private clients. Dr. Benito has experience in development of web-GIS applications using ArcGIS Server and the Geocortex Essentials web-GIS application development platform.

Relevant Project Experience

On-Call GIS Programming and Development Services, Alameda County,

CA: Part of the team of consultant firms providing on-call GIS programming services to Alameda County. Managing geospatial mapping, data analysis, and enterprise GIS web portal projects to support programs for multiple County Departments, including Department of Health & Environment, Public Works, Fire Department, Registrar of Voters, and the County Assessor's Office. Major projects include development of the Countywide eGIS Viewer for broad internal use within the County for accessing and viewing a wide range of County GIS layers linked to County database systems; agency-specific versions of the viewer for the Public Works Agency to view PWA assets and infrastructure and for the Community Development Agency to view and access zoning, land use, and permitting related data; and upgrading web GIS applications used by the Registrar of Voters to handle a range of tasks such as precinct consolidation, polling place assignment, and for sharing and displaying elections results data with the public.

Zones 3A and Zone 6 Drainage System Master Plans, Alameda County Flood Control and Water Conservation District, Alameda County, CA:

Project was to better identify flood control improvements needed to meet a 100-year flood protection level in Hayward, Union City, and Fremont, drainage master plans are being developed, which include detailed hydrologic and hydraulic studies. Managed GIS support tasks for the project, including development of a web-based GIS viewer that provides access to the entire GIS database of model system inputs and outputs, including land use, soil type, hydraulic and hydrologic properties of open and closed channel networks, and supporting documents such as site photos, survey locations, as-builts. The web-GIS viewer is being built using a combination of ESRI ArcGIS Server technology and Latitude Geographic's Geocortex web-mapping-application toolkit. Also managed staff carrying out QA/QC of project GIS data, geodatabase maintenance and conversion, development and analysis of network model datasets, and preparing map exhibits of project data layers.

On-Call Environmental Compliance Services, Port of Oakland, Oakland,

CA: Managing geospatial and environmental information management and analytical data validation services as part of a recently selected consultant team providing as-needed environmental compliance services to the Port of Oakland.

Conceptual Site Model Development, Confidential CERCLA Superfund

Site, CA: Leading the development of GIS visualizations and 3D models of VOC plumes and subsurface lithology as part of a team providing support to EPA for the characterization and cleanup of this 1,500-acre Super Fund Site. Responsibilities include overseeing of data integration and QA/QC of lithologic and chemical data from hundreds of boring and sampling locations, development of 3D digital elevation models, geostatistical modeling of the distribution of lithologic units and of contaminant plumes.

Ardenwood Creek Flood Protection and Project, Zone 5 Line P, Alameda County Flood Control and Water Conservation District, Fremont, CA:

This project is to increase flood conveyance by realigning a downstream portion of the creek; restore and enhance aquatic habitats; provide long-term vegetation management; and provide potential educational opportunities and multi-purpose pathway along Ardenwood Creek between Tupelo Lane and Alameda Creek in Fremont. The project entails both hydrologic and hydraulic analyses and aquatic restoration design for the creek, wetland, tidal and floodplain system. Managing GIS and data management support, as well as CEQA environmental permitting support as part of the recently selected consultant team working with the County.

Sediment Characterization and Coastal Engineering Consultation Services, San Francisco Department of Public Works, San Francisco, CA:

Overseeing the data management and analytical data validation services for two of the recently selected consultant teams providing as-needed sediment characterization and coastal engineering services to the San Francisco Department of Public Works.

Development of Plant Palette and Guidelines for Stormwater Treatment Options, City of Oakland, Department of Public Works, Oakland, CA:

Project is in support of the City's development of an Urban Greening Stormwater Retrofit Master Plan. Role is to oversee GIS application development for tools to support the evaluation of site conditions and selection of appropriate stormwater treatment options and suitable plant palettes on City properties.

Yosemite Slough Wetland Restoration, South San Francisco, CA:

Under a grant from the California State Parks Foundation, this 34-acre restoration project was designed to increase the area of wetland habitat, provide public access to the shoreline, and create opportunities for recreation and environmental education in the urban setting of the Candlestick Point State Recreation Area. The project involves excavating and grading of over 200,000 cubic yards of fill materials historically placed at the margins of the San Francisco Bay. Project role was to oversee the environmental data management and geospatial analysis support for the project team to help characterize the spatial distribution of soil chemical quality and facilitate the categorization and separation of on-site soil to be re-used as wetland cover material, upland cover material, general fill soil to remain on-site, or as heavily impacted soil that needs to be sent off-site.

Alex Evett | Psomas

Senior GIS Analyst



EDUCATION

1992 / BS / Aerospace
Engineering / California
Polytechnic State University,
Pomona

PROFESSIONAL AFFILIATIONS

Bay Area Automated Mapping
Association

Inland Empire GIS User Group

Mr. Evett is experienced in Geographic Information Systems (GIS). He has extensive knowledge and expertise in basemap, utility, zoning, addressing, and emergency services projects. He is Psomas' lead GIS Analyst in Psomas' Riverside office. His responsibilities include training other technicians, development of production procedures, resource allocation, subcontractor coordination, overseeing conversion operations, and serving on the Quality Assurance/Quality Control Oversight Committee.

Relevant Project Experience

Stormwater GIS, City of Phoenix, CA: GIS Analyst responsible for GIS data development coordination and quality assurance. Responsible for database design review, data conversion translation matrix, client delivery and acceptance coordination, and user documentation and training with ArcGIS desktop tools.

Irrigatable Landcover Analysis, Rancho California Water District, Temecula, CA: GIS Analyst responsible for analysis and reporting of irrigatable area per meter service area based on landcover type and surface slope of property.

West End Area Drainage Plan, City of Moreno Valley, CA: GIS Technician responsible for data layer gathering, editing, analysis, and exhibits for presentation to council covering issues pertaining to drainage area fees within the project area.

Surface Water Quality Model, City of Richmond, CA: GIS Analyst responsible for compilation, cataloging, and standardization of GIS datasets obtained from multiple agencies into datasets for use in surface water quality modeling. The resulting model output integrated into GIS data for use in mapping and reporting. Storm drain, zoning, general plan, parcels, streets, contours, contaminants, and water features information were used in the model.

GIS Sewer Design, Data Conversion, Data Repository, Data Mining, Field Collection Design and Procedures, ArcGIS Server Application, ArcPad Design and Workflow, City of Barstow, CA: GIS Analyst responsible for sewer geodatabase design; sewer data conversion and conflation; professional licensed survey field data collection setup, tracking, processing, and GIS integration; existing data inventory, standardization, repository and migration; ArcGIS Server application creation; field collection setup and workflow using ArcPad.

GIS Sewer and Storm Drain Design, Data Mining, Conflation and Conversion, Atlas Books, ArcGIS Server Application, City of Lemon Grove, CA: GIS Analyst responsible for GIS sewer and storm drain geodatabase design; data mining; data conversion and migration; ArcGIS Server application creation.

Multiple Utility Conversion, City of Pittsburgh, CA: GIS Analyst responsible for conversion of sewer, storm drain, potable water, and recycled water. Sources were AutoCAD and image formats of recently constructed facilities.

Storm Water Atlas Book, City of La Quinta, CA: GIS Analyst responsible for the creation of a storm drain atlas book using DSMapBook extension. Task also included data mining, clean-up, QA with reporting to improve data quality.

Wastewater GIS Conversion, City of Los Angeles, CA: GIS Technician responsible for conversion work and quality assurance during the conversion process.

Surface Water Quality Model, City of Richmond, CA: GIS Analyst responsible for compilation, cataloging, and standardization of GIS datasets obtained from multiple agencies into datasets for use in surface water quality modeling. The resulting model output integrated into GIS data for use in mapping and reporting. Storm drain, zoning, general plan, parcels, streets, contours, contaminants, and water features information were used in the model.

GIS Services, Los Angeles Stormwater, City of Los Angeles, CA: Production Manager responsible for managing subcontractor during conversion, creating procedures and specifications, and setting up and performing quality assurance procedures and routines of the storm layers. Coordinated map preparation and conversion of 22,000 as-built drawing plan sets by subcontractor. Set up and used a variety of software tools for project quality assurance, including ArcGIS, DogCreek QC, and Access.

Stormwater Conversion and Modeling Support, City of Huntington Beach, CA: Responsible for subcontractor coordination during conversion phase, and internal quality control of deliveries from subcontractors. Also responsible for processing GIS data for use by modeling software.

Master Drainage Plan Conversion, City of Costa Mesa, CA: GIS Technician responsible for the database design, conversion from as-builts, GPS correlation, and quality assurance using ArcEdit, ArcView, and Access. Provided data inputs for storm drain hydrology and hydraulic modeling. Integrated model results into GIS data along with an interactive map in ArcMap.

Rio Linda Water District, ArcGIS Server Application: GIS Analyst responsible for creation of ArcGIS Server application for use by the client for data review.

Sewer Conversion, City of Fontana, CA: GIS Technician responsible for quality assurance of the sewer conversion. Coordinated conversion of 5,000 as-built drawing sheets by subcontractor. Used ESRI SDE Sewer GeoDatabase Model. Performed all conversion of pilot area. Created MapBook project for atlas. Task consists of As-Built drawing scanning and indexing, conversion of new sewer network features from As-Builts, and maintaining association of GIS data with GBA facility management software. Maintenance of all sewer related layers is still ongoing as of 2008.

Orange County Water District Facility Management: GIS Analyst responsible for conversion of pilot area data of a single facility area. Source documents consisted of AutoCAD drawings and As-Builts.

Scott Doan | Psomas

Emergency Services Consultant



EDUCATION

State certified Firefighter 1
State certified Firefighter 2
ICS 100, 200, 300 and 400
Logistics Section Chief S-450
Command and General Staff
S-420
Chabot College, Hayward, CA

AFFILIATIONS

International Association of Fire
Chiefs
Association of Public Safety
Communication Officials

Mr. Doan is a career firefighter serving in many capacities throughout his 30 year career, including Fire Captain, Assistant Chief, and Division Chief for Information Technology with Alameda County Fire Department. In his current capacity at Psomas as the Senior Public Safety Consultant, Mr. Doan applies his understanding of fire, police, and EMS business operations to advanced information system solutions. He has managed large information systems operations, CAD implementations, CAD integrations and fire station construction projects.

Relevant Project Experience

SitStat Sheriff Deployment, Alameda County Sherriff, Dublin, CA: Project Manager leading the integration of the Sheriff Intergraph CAD 9.3 with the existing County Fire SitStat Application. The project required development of a high performance CAD data replication service and establishment of data filters and symbology representation for Sheriff units and incident types. The resulting integration provides a common operating picture with law, fire, and EMS. Role based security and enhanced security for data transmission was required to address Sheriff requirements.

SitStat Mobile Application Development, Alameda County Fire Department, San Leandro, CA: Lead programmer and technical manager responsible for the design and development of the emergency response application designated as “SitStat.” This application replaces the pilot version built by ESRI. The new SitStat is a mobile application that enables multi-platform access by over 300 users, providing situational awareness to first responders through Computer Aided Dispatch system data, including location of units, incidents, and other pertinent information (such as dispatcher notes, hospital resources and services, weather data, etc.) This multi-platform includes network workstations (various web browsers), mobile tablets (iPad, Android), and handheld units (iPhone, Android).

Paramedics Plus Implementation into ACRECC, Livermore, CA: Served as the Project Manager to bring a private ambulance firm (Paramedics Plus) into the Alameda County Regional Emergency Communications Center (ACRECC). This project included integration of five different software applications to deliver Paramedic care and hospital transport to every citizen in the County of Alameda and support the 911 system.

CAD to CAD Implementation, Oakland, CA: Project Manager for the ACRECC Oakland CAD to CAD System. Involved integration between a Motorola CAD system and a Intergraph CAD system across a multiple network infrastructure in two different cities.

Managed Information Technology for Seven years for ACFD and ACRECC, Alameda County, CA: With an annual budget of \$2 million, managed the entire information technology infrastructure for the Alameda County Fire Department comprised of 37 locations as well as the IT infrastructure for ACRECC, a 911 communications center that dispatches over 180,000 calls a year.

LATITUDE GEOGRAPHICS

Psomas is a partner of Latitude Geographics and has implemented many Geocortex sites. The following slides represent some of the implementations of Geocortex that illustrate a diversity of installations and advanced developments. These slides demonstrate Psomas' understanding of Geocortex design and development and also our understanding of divers business areas of the County departments.

PSOMAS

Geocortex®

What can you do with Latitude Geographics?

Psomas experience deploying diverse GIS solutions with Geocortex for Alameda County

ALAMEDA COUNTY, CA
acgov.org

PSOMAS



Registrar of Voters

- Precinct Consolidation
- Election Results Viewer

Assessor

- Parcel Viewer
- Field Canvassing

Enterprise GIS

- Countywide GIS Viewer

Community Development

- Case tracking and property lookup

Public Works

- Online map atlas
- Gas pipeline viewer

Sheriff / Emergency Operations

- EOC Viewer

New Projects in the Works

Precinct Consolidation, Registrar of Voters

A desktop application that integrates with the ROV election system to facilitate precinct consolidation based on ballot type for specific elections. Facilitates spatial consolidation, assures contiguous areas, selects polling place.

Benefits: Alameda County's consolidation process with the Registrar of Voters' system improves quality.



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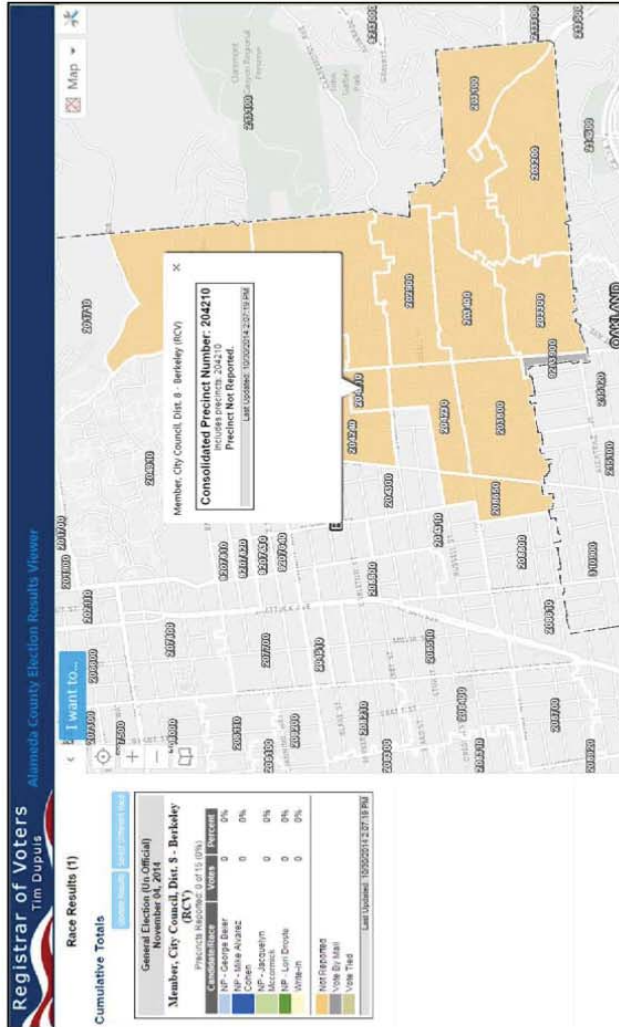
- EOC Viewer

New Projects in the Works

Election Results Viewer, Registrar of Voters

The HTML5 election results viewer presents election results as they are tallied. The public accessible site allows users to select specific races or measures and visually see the results by precinct.

Benefits: Direct integration with polling system provides current information for the public in a visual and tabular presentation.



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New Projects in the Works

Parcel Viewer, Assessor

The HTML5 parcel viewer provides the public with property specific information and maps including tax roll, tax collector, assessor map pages, and a dynamic GIS map and Google street view and Pictometry.

Benefit: Easy access to property information supports public and business activities as well as the county internal business processes



The diagram illustrates a central platform, **Geocortex®**, which integrates several key systems. These systems are represented by colored boxes on the left, each with a list of capabilities:

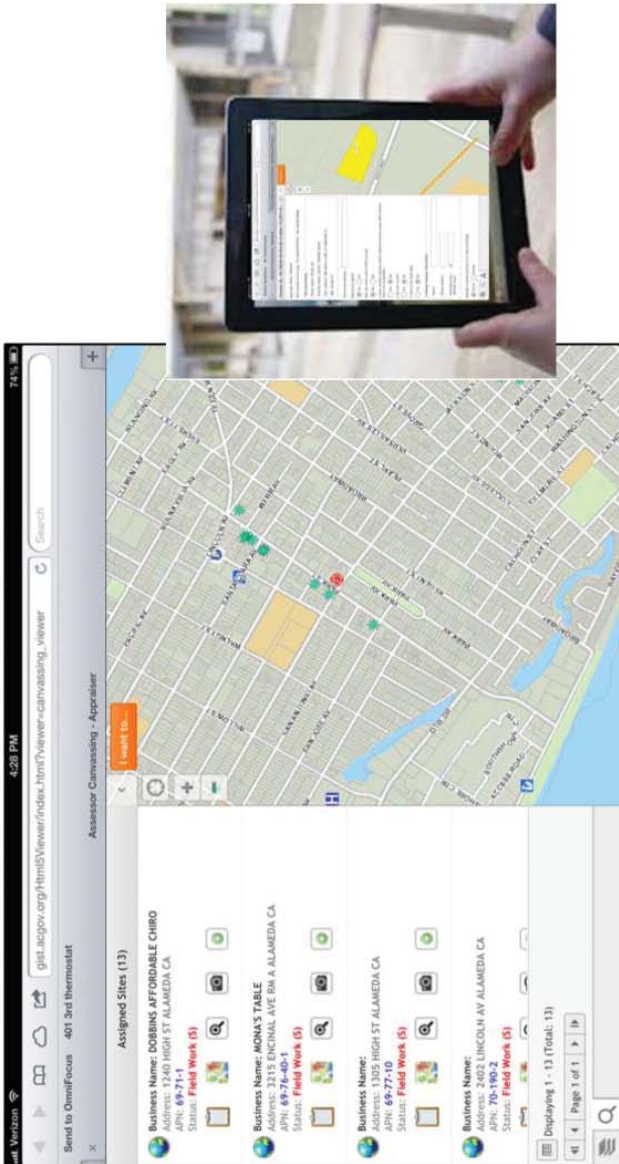
- Registrar of Voters** (Dark Blue):
 - Precinct Consolidation
 - Election Results Viewer
- Assessor** (Light Blue):
 - Parcel Viewer
 - Field Canvassing
- Enterprise GIS** (Green):
 - Countywide GIS Viewer
- Community Development** (Orange):
 - Case tracking and property lookup
- Public Works** (Yellow):
 - Online map atlas
 - Gas pipeline viewer
- Sheriff / Emergency Operations** (Pink):
 - EOC Viewer
- New Projects in the Works** (Light Blue):

A large red arrow points from the bottom center towards the **Geocortex®** platform, indicating the flow of data or integration into the central system.

Field Canvassing, Assessor

This NACO award winning application resulting in a 50% time savings and a first year positive ROI for the Assessor. The HTLM5 application is for field appraisers to visit and document commercial properties that have not complied with assessor reporting requirements.

Benefits: staff productivity, data quality, scalable solution, repurposing



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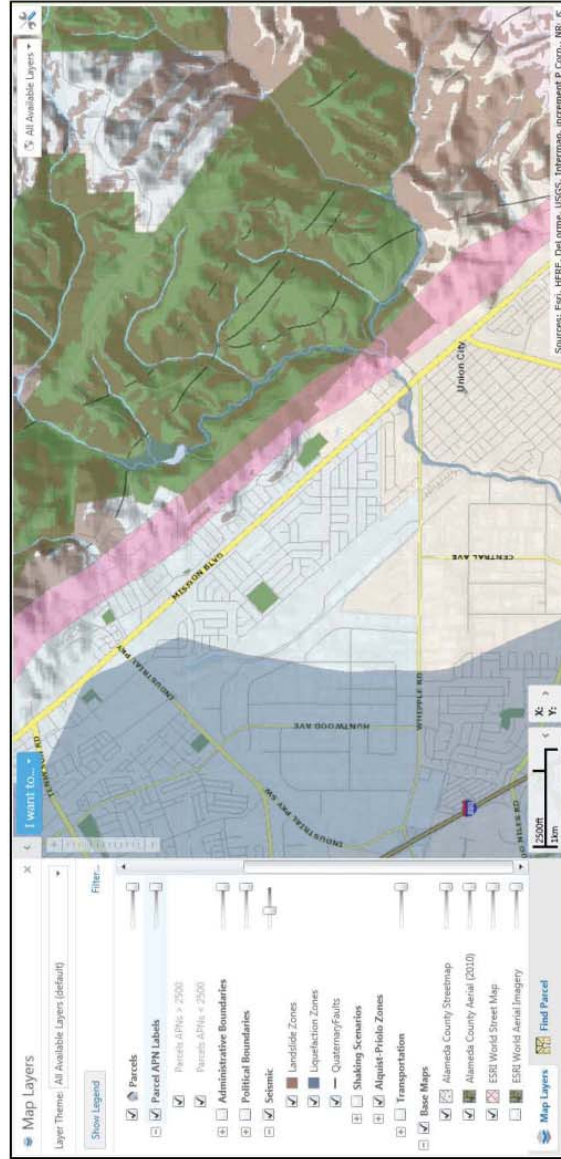
- EOC Viewer

New Projects in the Works

Countywide GIS Viewer, ITD

The Countywide GIS Viewer serves many different County Departments with information search, access to a large amount of data layers, and predefined mapping capabilities.

Benefits: Easy to use application for all departments provides direct data and mapping access



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Sheriff / Emergency Operations

- EOC Viewer

New Projects in the Works

Community Development, Public Works Viewer, CDA and Public Works

This viewer is configured to support the specific business needs of the Community Development Department and Public Works. The viewer provides linkages to the CDA case management system and planning specific data layers.

Benefits: Access to site specific information contributes to better planning and design and quicker decision making.



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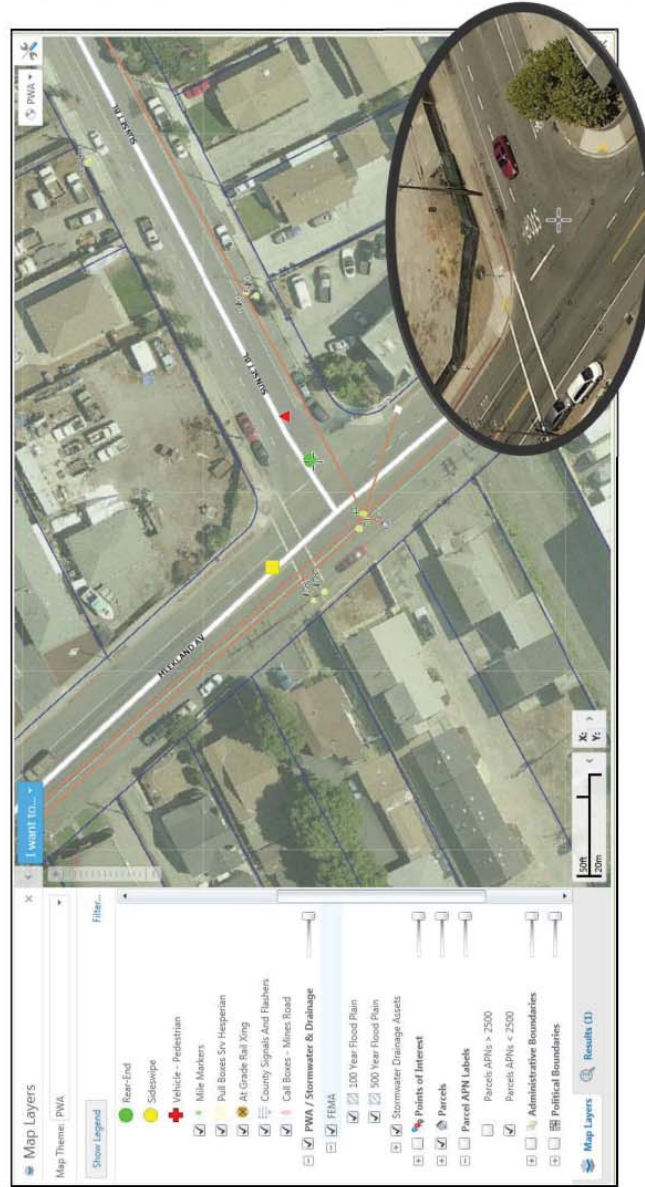
- EOC Viewer

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- EOC Viewer

New Projects in the Works

Gas Pipeline Viewer, Public Works

Designed to provide access to gas pipeline locations to aid maintenance workers for risk mitigation, assist in project design decisions, and support communication with the public about risks.

Benefits: Helps in project design decisions, maintenance risk management, and public outreach



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Sheriff / Emergency Operations

- EOC Viewer

New Projects in the Works

EOC Viewer, Sheriff / Emergency Operations Center

The EOC viewer includes nearly all GIS data available within the county and access to dynamic event centric data layers.

Benefits: Aids in multi-agency incident management and scenario planning.



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New Projects in the Works



New Projects Underway

Alameda County continues to sponsor new GIS based projects for office and mobile users. These projects leverage prior data and application by reusing map services and workflows.





1500 Iowa Avenue
Suite 210
Riverside, CA 92507
951.787.8421 Phone
951.682.3379 Fax
www.Psomas.com